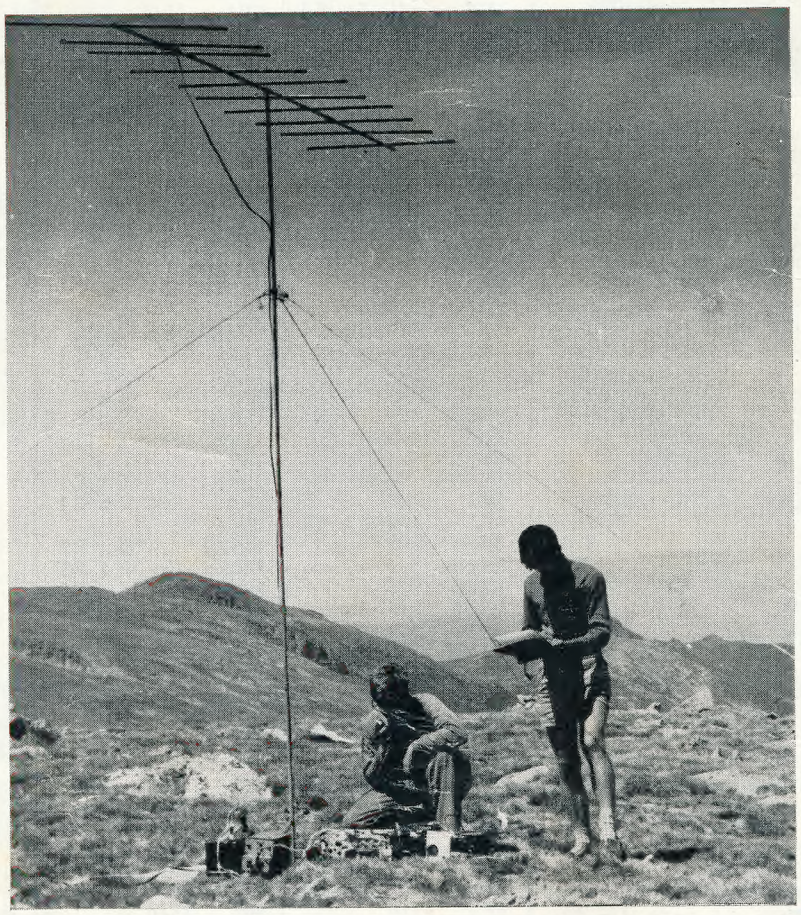
AMATEUR RADIO

APRIL 1962



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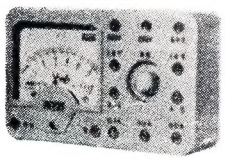

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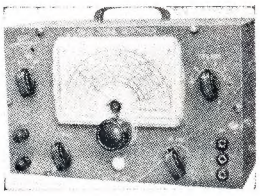

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"AMATEUR RADIO"

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OUR COVER

The highest radio station in Australia was situated on Mt. Kosciusko. The "Command" equipment was operated by VK2ZXY and VK2ZPJ who contacted fourteen stations.

COMMENT

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FEDERAL CONVENTION

The Federal Convention—the first for three years—will be held over the Easter holiday period when some fifty odd agenda items plus general business items will be discussed. It is being held in Perth in the same year as the British Empire Games.

The discussions at a Convention affect every Amateur in Australia and it becomes mandatory that you, the Amateur, know what is being discussed and why. For economical reasons the agenda will not be published in "Amateur Radio", but a precis of the determinations will appear some time after the conclusion of the Convention. In the meantime, if you are interested in affairs which might well govern your interest in our world wide hobby, then contact the Federal Councillor of the Wireless Institute of Australia in your State and ask to peruse a copy of the agenda. Then, if there is something on which you would like a say, you record your remarks with him and he will submit them to the Council of the Division. The Council will then determine whether your ideas in part or in whole will be included in the delegate's brief to the Convention. Alternatively, you have had the opportunity over the past several months to discuss part of the agenda with representatives of your State's Divisional Council at the monthly meeting of the Division.

At the risk of reiteration it is said again—in fact can never be said too forcefully—that Amateurs all over the world should take more interest in the Societies and Institutions which represent them in order that their place in the spectrum can be preserved for them, and the facilities for the conduct of their unique hobby maintained.

Conventions are one way of doing this and you will find these organised in every country in the world where Amateur transmitters are permitted. It is because a hard working proportion of licensed Amateurs give of their time, sometimes against steep opposition and ill-informed critics outside the field of our activities, that you enjoy Amateur Radio. Take an interest in the affairs which govern your hobby and you assist those who dedicate their time to your problems.

FEDERAL EXECUTIVE, W.I.A.

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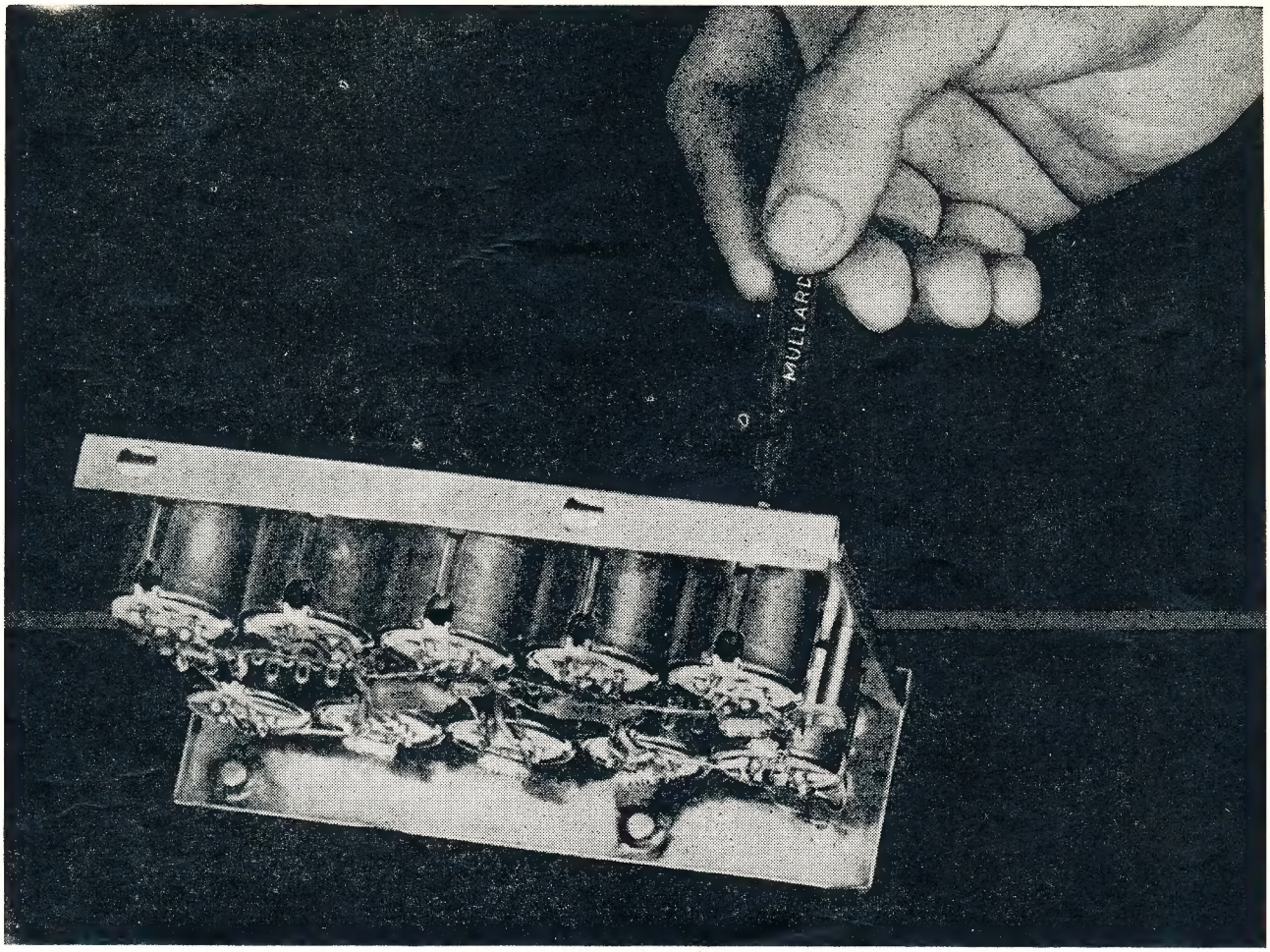

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SILICON DIODES *for the* RADIO AMATEUR

A. H. S. BRIDGMAN, VK2AHO*

SILICON diodes for power rectifier purposes are now on the market and are already being used in television receivers and other commercial electronic equipment. Amateurs already committed to 866As and 5U4Gs are not likely to throw these excellent tubes away. However, for those starting from scratch, and also for those who enjoy persuing the art of building more efficient, more compact, more reliable equipment, silicon diodes are well worth considering. In order to apply these diodes in the most economic way, a sound understanding of the fundamental principles of power supplies is essential. So let us start with a short "refresher course".

To avoid confusion it is best to adopt one system of rectifier ratings in preference to all others. We are used to saying that a 5U4G is a full-wave rectifier good for 500 volts d.c. at 250 mA. d.c. These figures only apply to the standard full-wave circuit such as that of Fig. 1, in which a transformer giving 500 volts r.m.s. each side of the centre tap is employed. The voltage drop across the rectifier, in the transformer windings, and in the smoothing choke, usually ensures that the full-load output voltage is about 500 volts d.c., although the peak (no-load) voltage will be close to the theoretical maximum of $500 \times \sqrt{2} = 700$ volts approximately.

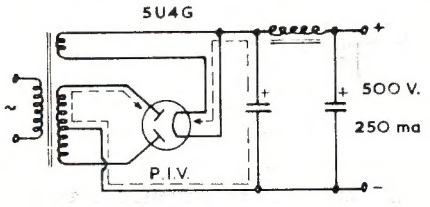

Fig. 1 Transformer 500-0-500 V.A.C
P.I.V = $2/\sqrt{2}$ V_{AC} = 1400 volts

The voltage which determines the rating of each diode in the circuit, however, is the Peak Inverse Voltage (p.i.v.). This is the maximum reverse voltage which the diode is called upon to resist. In the circuit of Fig. 1, the p.i.v. is equal to the d.c. voltage across C1 plus the peak a.c. voltage acting in series with it across one diode. The worst condition is no-load, when the p.i.v. at the diode is 700 + 700 = 1,400 volts. This, then, must be the true rating of the rectifier. If you don't believe it, look up the p.i.v. rating for a 5U4G in your valve tables!

Another point is that the reservoir capacitor C1 is charged on alternate half-cycles by alternate diodes. Each diode, therefore, passes 250 mA. (r.m.s.) only for half the time. Its continuous rating is only 125 mA. d.c. output.

It is important to understand these "true" ratings for rectifiers because that is the way manufacturers express the ratings of their silicon diodes. Confusion may result if you don't stick to these two fundamentals, the p.i.v. and the d.c. output current.

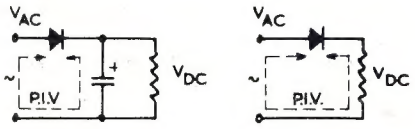

Fig. 2 P.I.V. = $2/\sqrt{2}$ V_{AC} P.I.V. = $\sqrt{2}$ V_{AC}

Some manufacturers quote, in addition to p.i.v., the maximum permissible r.m.s. input voltage for a given rectifier. This immediately means that they have to give two figures, one for use with an input capacitor and one for use with a resistive load. As you can see from Fig. 2, the permissible r.m.s. input voltage for the second case is twice that for the first, because there is no steady d.c. voltage acting in series with the applied a.c. voltage on reverse half-cycles. Incidentally, the maximum d.c. output current may be different for the two cases, due to the different current wave-form in the diode.

So now we have silicon diodes. Those currently available at low prices are high-current, low-voltage types, ranging from 400 p.i.v. at 500 mA. d.c. to 800 p.i.v. at 500 mA. d.c. The problem is how to use them in an economic manner. The first impulse is to put them in series, of course. To replace a 5U4G with Philips OA210s (rated at 400 p.i.v. at 500 mA. d.c.) we would need four in series in each half of the full-wave circuit of Fig. 1, making a total of eight. The maximum d.c. output would then be 2 × 500 mA. = 1 ampere; unless you particularly want this current, and can back it up with a suitable transformer, the design is uneconomic, at present.

The answer is to use a voltage doubler circuit, as in Fig. 3. When used in conjunction with high value capacitors (which are also available now) the full-load output d.c. voltage is almost equal to the peak of the a.c. input voltage; in other words the regulation is extremely good. To obtain 500 volts d.c. from the circuit of Fig. 3 we are only concerned with 500 volts p.i.v. at each diode, since the d.c. voltage across each capacitor is only 250. The peak a.c. input voltage to each diode is only 250 which means that the r.m.s. voltage of the transformer secondary should theoretically be 180 volts. To allow for voltage drops this should in practice be raised to about 200 volts. A good rule is:—

D.c. output voltage (full-load) = 2.5 × r.m.s. input voltage.

With this arrangement we would only need four diodes type OA210, or only two type OA214, to give us 500 volts at 500 mA. Recommended values for the capacitors are 100 μF. at 350 volts d.c. working. The cost of this power supply is well below that of the equivalent 5U4G circuit; and furthermore, it is smaller, lighter, less dangerous, more reliable, has practically infinite life expectancy, and runs at a fraction of the heat loss.

The advantages don't stop here, they only start! Owing to the large value capacitances, the a.c. ripple in the output is very low. In power supplies for p.a. and modulator stages, the inductance of the modulation transformer gives us free smoothing and the choke in Fig. 3 may be omitted. A choke is only needed in the supply line to the low-level stages, and this of course can be smaller. Omission of the big feller leads to even better voltage regulation, of course.

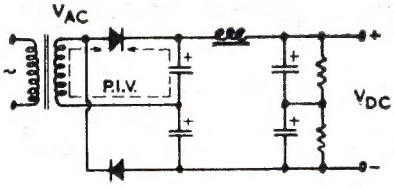

Fig. 3 P.I.V. = V_{DC} = $2/\sqrt{2}$ V_{AC}

The next step is the omission of the mains transformer altogether.* With this arrangement, using two OA214s, we can get 600 volts d.c. at 500 mA. from 240 volt a.c. mains. The application of a circuit of this type should be limited to power supplies for p.a. and modulator stages, all other sections following normal practice. In this way the number of components connected "directly" to the mains (via the diodes) is reduced to the minimum. The chassis must be earthed in the usual way, and the cathodes taken to a separate negative h.t. line.

Provided that all the normal precautions are taken this arrangement is no more dangerous than the conventional set-up. In fact, it is safer, because the maximum voltage to earth anywhere in the transmitter is only 300, against 600 volts in a conventional arrangement.

* Flat 1, 26 Spruson St., Neutral Bay, N.S.W.

* This is not recommended for Amateur practice. In all instances an isolating transformer should be used on mains input. The circuit is included for interest only.—Editor.

Fig. 4 shows the basic requirements for power supplies to a hypothetical transmitter running 120 watts to a pair of 807s, or even 150 watts to a pair of 6146s if you can afford them, modulated by a pair of similar valves in Class B. The important features are:—

1. The driver and modulation transformers act as "isolation" transformers between the mains and the normal sections of the transmitter, and must be of adequate insulation voltage rating for this purpose.
2. The r.f. input and output capacitors C1 and C3, and also the grid by-pass capacitor C2, must be mica types of 2,500 volts d.c. rating, or 5,000 volts d.c. "test".
3. If possible use a link coupling to the antenna rather than a direct connection, thereby completing the isolation of the mains. Otherwise the capacitor C3 should not exceed 0.001 μF.
4. A double-pole mains switch and double-pole fuses are recommended. With this arrangement it is immaterial which mains connection is "active" and which is "neutral".
5. The mains interference suppressors C6 and C7 must not be omitted because the silicon diode power supply takes almost a square-wave of current from the mains, in other words "hash" may be radiated from the mains wiring unless suppressed.
6. Resistor R limits the surge-current into the OA214s on switch-on, and should be at least 7 ohms, 14 watts. Follow the maker's recommendations.

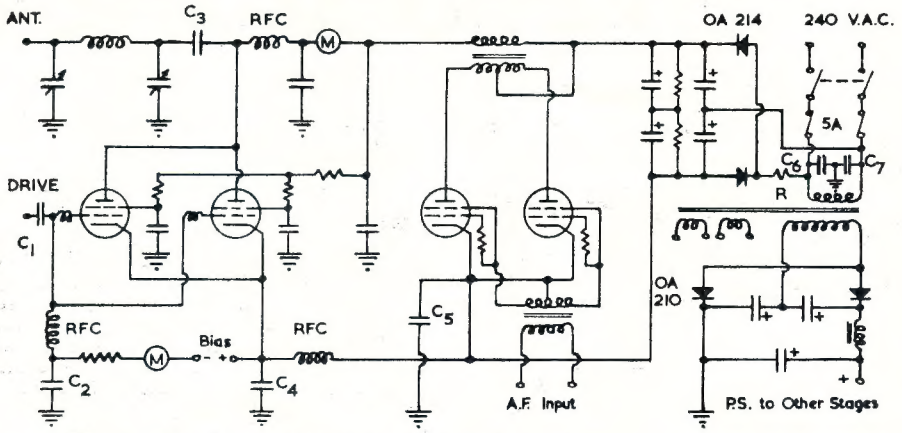

Fig. 4 BASIC CIRCUIT FOR 150 watt P.A. and MODULATOR

See Editor's comment in text re use of an isolating transformer.

The writer is at present developing a table-top transmitter along these lines and hopes to feature it in a future article. ●

ANTENNA CONSTRUCTION HINTS

DIETMAR KIESEWETTER, VK2APK*

When building a Quad, the writer found the best way of connecting the rangoon canes (bamboos) to the boom was by three pieces of angle iron as shown in Fig. 1. The cross pieces of

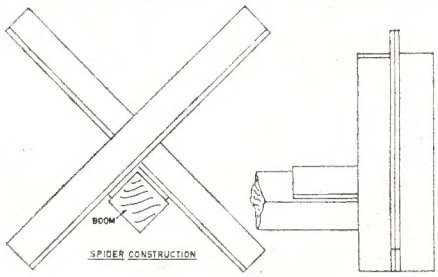

FIGURE 1.

$1\frac{1}{4}$" x $1\frac{1}{4}$" angle iron, 20" long, were welded together back to back; the third angle iron $1\frac{1}{2}$" x $1\frac{1}{2}$", 8' long, being welded underneath and sits on the boom. It is held by two clamps, each made of two steel angle brackets, the ends so bent that they can be screwed together. The bamboos were kept in position with the same type of brackets (Fig. 2).

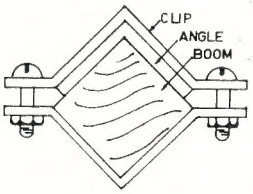

FIG. 2.

Before use, all iron parts should be painted with a zinc chromate metal primer. The centre of the boom rests in an angle iron bracket which is welded on the top of a water pipe socket the size of the supporting pipe (Fig. 3). Again the position of the boom is as-

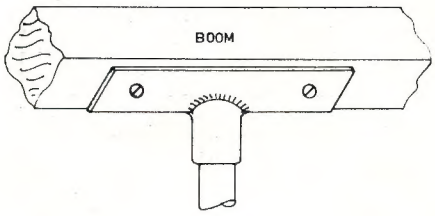

FIG. 3.

sured by two clamps as described before (Fig. 2) and some wood or machine screws. (For the writer's Quad the boom is made of 2" x 2" Pacific maple, 9 feet long.)

* *

For a 6 metre four element beam, the 12 feet long boom is of dural, $1\frac{1}{2}$" square by $\frac{1}{4}$" wall. The elements are held by home-made all-aluminium fittings, as shown in Fig. 4.

The Omega matching box ($4\frac{1}{2}$" x $2\frac{1}{2}$" x $2\frac{1}{2}$") fits just underneath the driven element. Both tuning condensers and the co-ax connector are on the bottom side, to make protection against weather easier. The Omega rod ($\frac{3}{8}$" diameter) is spaced 12" centre to centre from the element, is drilled, tapped and screwed on the feed-through insulator on one side of the matching box.

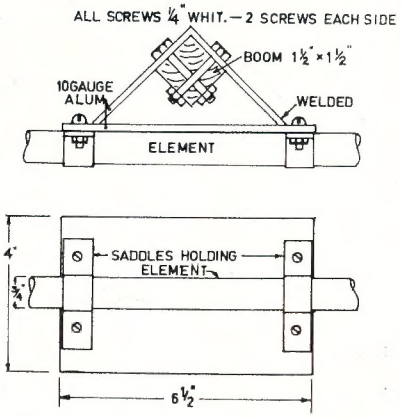

FIG. 4.

This antenna construction makes it possible to assemble and dismantle the antenna in a very short time and to carry it on the top of a car, therefore it is ideal for propagation tests and field days. ●

★

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THE BEST BAND FOR V.H.F.

P. EDWARDS, B.Sc.(Hons.), VK7ZAJ*

A GLANCE at the title of this article will probably be sufficient to raise the ire of many a v.h.f. man. Every Amateur has his favourite frequency band and most can find some argument to justify their choice.

Strictly speaking of course there is no best band for all purposes. So many factors are involved that it is in general impossible to make a choice of the optimum frequency. If we agree on a few basic matters however, the choice is quite easy. I shall attempt to show how to deduce the optimum frequency for a v.h.f. link operating to the optical horizon. I shall then give an answer to the following question:

What choice of frequency minimises the power output required by stations operating over a near-horizon path?

For (a) A "smooth" earth.
(b) An undisturbed atmosphere (no ducts, etc.).
(c) No ionospheric propagation.
(d) No man-made noise, total noise being the sum of receiver and sky noise.
(e) Frequencies between the 50 Mc. band and the 1,215 Mc. band.

Before explaining these assumptions I shall unashamedly admit that they are simplifications of real conditions. In practice things may often be quite different. However, by first restricting the problem it becomes easier to draw more general conclusions.

PROPAGATION OVER THE EARTH'S SURFACE

The earth's surface acts as a reflector at v.h.f. and the reflected signal may partly cancel the direct signal. As a result signals exchanged by earth-bound Amateurs (this includes you) are generally weaker than they would be in space. In addition if the signal travels in the vicinity of the optical horizon, the bulge of the curved earth will obscure the view that either antenna has of the other. The result of all this makes the path loss not only greater than in free space but dependent on frequency and distance in a different way.

Neglecting the effect of distance for the moment, doubling the wave length will raise the signal transmitted between two dipole antennae in free space by one S point. If two stations are well within line of sight, however, the earth may be considered flat. In this case change of frequency has no effect on path loss at all, providing the frequency is less than about 10,000 Mc. Above this frequency atmospheric absorption sets in.

The signal from a station at the optical horizon **will** depend on frequency because of the earth's curvature, in fact it will drop by 4 db. (2.5X) every time the frequency is doubled. In general then the presence of the earth's surface makes the strength of a signal less dependant on frequency than in free space.

* 28 Bain Terrace, Launceston, Tas.

★ The writer puts forward in a concise manner the effects of all factors governing the choice of a v.h.f. band. It is of particular interest in relation to satelite communication, and also has application in every-day ragchewing.

It will be seen later that the choice of optimum frequency does not depend critically on the path loss. Restrictions on antenna size are much more important and will be discussed in the next section. So far dipole antennae on a smooth earth have been assumed. Since most propagation paths lie over rough terrain the ground does not act as a mirror reflector. Over a rough earth the strength of the reflected wave is therefore reduced and results in net increase in signal strength above that expected for a path over the sea. Exact calculation of terrain effects is too difficult to carry out so we assume that the earth is smooth, bearing in mind the fact that what may appear to be a smooth earth to a 50 Mc. signal may in fact be "rough" at 576 Mc. Other things being equal this would mean a stronger signal at the higher frequencies.

ANTENNA LIMITATIONS

In order to make a comparison between signal strengths at different frequencies it is necessary to specify the antennae to be used. The preceding discussion involved dipole antennae. A more realistic approach is to assume that the physical size of the antennae is fixed. Landlords, city councils, XYLs and car roofs being what they are, it is probably fair to limit the antenna in this way.

Now the power gain of an antenna of fixed dimensions (capture area) increases as the square of the frequency. That is, you gain one S point simply by changing from, say, 2 metres to 1 metre if you possess antennae for these bands of equal capture area. Suppose two stations were to conduct an experiment in which they exchanged signal reports on these two (or any other) bands. If both operators had built a set of antennae of area independent of frequency, then neglecting other considerations they would expect a rise of two S points (one S point at each end of the link) for every doubling of frequency. For example, in going from 50 to 576 Mc. the signal would increase from, say, S2 to S9 for the same radiated power. Although these figures apply only over a flat earth in the absence of noise, they indicate the importance of the antenna in determining the link performance at different frequencies.

NOISE

In any communication system the presence of noise sets a lower limit on the readability of a signal. If the noise is impulsive (e.g. ignition) it may be possible to discriminate against it. The amount of man-made noise of this type obviously varies markedly from place to place and is therefore difficult to take into account. We shall assume that either man-made noise is absent or that it is possible to remove it by suitable techniques. At v.h.f. two sources of noise remain—the sky and the receiver.

SKY NOISE

The galaxy, of which our solar system is a member, is a source of radio noise of extremely high intensity. The radio temperature of the sky depends both on frequency and direction. The most intense region coincides with the Milky Way and has a temperature exceeding 30,000° Kelvin at 50 Mc. This means that if a 50 Mc. antenna points at this region the amount of noise received will exceed that from a resistor (of the value of the antenna impedance) to this temperature. Now a **good** 50 Mc. receiver **may have** a noise figure of 3 db. The noise internally generated in this set is equivalent to the noise from the input resistor heated to a mere 300°. In other words the noise pick up is over 100 times that generated in the receiver. The effective noise figure in this case would therefore be more than 100 times (20 db.). The futility of trying to improve a hook up by reducing the receiver noise figure under these conditions is clear. Fortunately the Milky Way will not always get in the way of the signal. Also by going to a higher band the amount of sky noise may me cut to a very low figure.

RECEIVER NOISE

Above 400 Mc. the highest sky temperature will be less than that of the earth (300 degrees). In this part of the frequency spectrum receiver noise becomes the limiting factor. Since we are concerned with equipment readily available to the v.h.f. Amateur we shall not consider masers or parametric amplifiers in this discussion. Instead, we shall take as the sole contributor to receiver noise an ideal 6AK5 pentode working under optimum conditions. This noise figure is given in Table 1 for the various Amateur bands. As will be seen these figures can easily be obtained (and in some cases bettered) in practice.

Values of the maximum and minimum **effective** noise factors (taking sky noise into account) are also given. If the Milky Way passes across the antenna beam during the day the maximum values will be reduced somewhat at the lower frequencies because of absorption in the D layer of the ionosphere.

When comparing the values at different frequencies it should be borne

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25 μF. 6v. d.c.w. 2/2 „ „	25 μF. 12v. d.c.w. 2/4 „ „	25 μF. 25v. d.c.w. 2/5 „ „	25 μF. 50v. d.c.w. 3/3 „ „
50 μF. 6v. d.c.w. 2/2 „ „	50 μF. 12v. d.c.w. 2/5 „ „	50 μF. 25v. d.c.w. 3/2 „ „	
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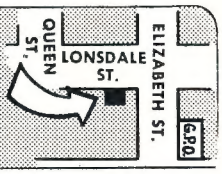

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in mind that noise factor and required radiated power are directly related. For a drop of 3 db. in e.n.f., transmitter power may be halved and the same signal-to-noise ratio maintained.

OPTIMUM FREQUENCY

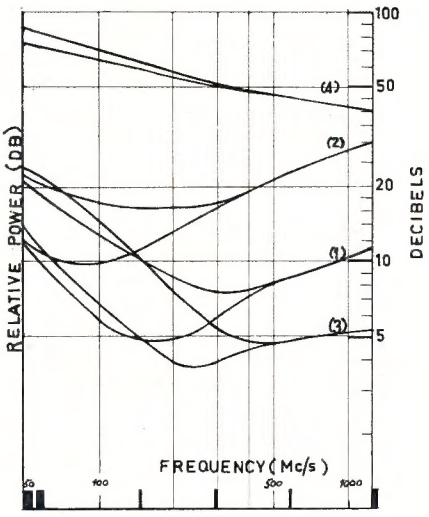
To summarise briefly, we are attempting to find the frequency at which the various frequency-dependent factors combine to reduce the required radiated power to a minimum for a given path. The path we are considering is one close to the optical horizon. When these factors are mathematically examined it is found that the type of propagation path does not have a marked influence. The limitation on the antenna size, the external noise level and the receiver n.f. are the three important variables. Neglecting the first factor for a moment we have seen that since sky noise predominates at the low frequency end and receiver noise at the high frequency end, the sum of these is smallest at intermediate frequencies. If the antenna effect and the path loss to the horizon are fed into the calculation it is clear from the preceding discussion that the optimum frequency will be raised above that for which the n.f. is least.

Referring again to Table 1, the band for which the e.n.f. is lowest is the 2 metre band for minimum sky noise and the 1 metre band for maximum sky noise. These would be the optimum bands for dipoles well within line of sight. For dipoles at the optical horizon the situation is somewhat similar. Table 2 shows relative power (again in db.) for this case. The superiority of the 2 metre band is clear.

Now take a look at the graphs. Curve 1 shows the e.n.f. Curve 2 represents the figures in Table 2. Table 3 and Curve 3 show the situation where one station uses antennae of constant size while the other uses a half wave dipole for each band. Curve 3 would also apply if both stations used Yagis of constant length. The higher bands begin to come into their own! Table 4 and Curve 4 apply when **both** stations use constant aperture antennae. Here there is no doubt about the superiority of u.h.f. This is, of course, a result of the high antenna gains obtainable. Comparing the 60 and 1,215 Mc. bands it can be seen that ½ milliwatt of radiated power at 1,215 Mc. will do the job of one watt at 60 Mc. There is one drawback, however—beam width. A 1,215 Mc. antenna of the same area as a 5 metre antenna with 10 db. gain would have a gain of 36 db. but a beam width of only a couple of degrees.

	Frequency (Mc.)	50	60	144	288	576	1215
Table 1. Effective Noise Figures.	E.n.f. (max.)	21	19	10.5	7.5	8.5	11
	E.n.f. (min.)	11.5	10	5	6	8.5	11
	Receiver n.f. (db.)	2	2	4	6	8.5	11
Table 2. Relative Power for dipole to dipole horizon link.	Relative Power:						
	Max. (db.)	21	20	16.5	17.5	22.5	29
	Min. (db.)	11.5	11	11	16	22.5	29
Table 3. Relative Power for dipole to fixed aperture horizon link.	Relative Power:						
	Max. (db.)	23.5	20.5	10.5	5.5	4.5	5
	Min. (db.)	14	11.5	5	4	4.5	5
Table 4. Relative Power for fixed aperture horizon link.	Relative Power:						
	Max. (db.)	61.5	56.5	40.5	29.5	22.5	17
	Min. (db.)	52.0	47	35	28	22.5	17

Note that each of the four curves has two branches. The upper branch is drawn for maximum sky noise, the lower branch for minimum sky noise. The figures for the two branches of any one curve are directly comparable and they are given in the Tables. The vertical scale of the graphs is given in db. and it is compressed towards the top. The position of the curves on the graph is quite arbitrary. The figures have



simply been adjusted so that the curves do not pile up on each other. The scale figures are correct for Curve 1 and allow the e.n.f. to be read off directly in db. for any frequency.

In order to keep the article brief I have omitted mention of the relation between distance and power. Discussion of the actual power required for various paths may also be worthwhile, but deserves a story of its own.

One of the interesting conclusions is the advantage of u.h.f. when antennae of the same size as those on the lower bands are used. With modern tubes the drop in transmitter efficiency at u.h.f. will be completely swamped by the increase in antenna gain.

If minimum input power is the criterion for the optimum frequency, the tables and graphs must be modified. In general the advantage of the higher frequencies will be reduced and the optimum frequencies will be slightly lowered. ●

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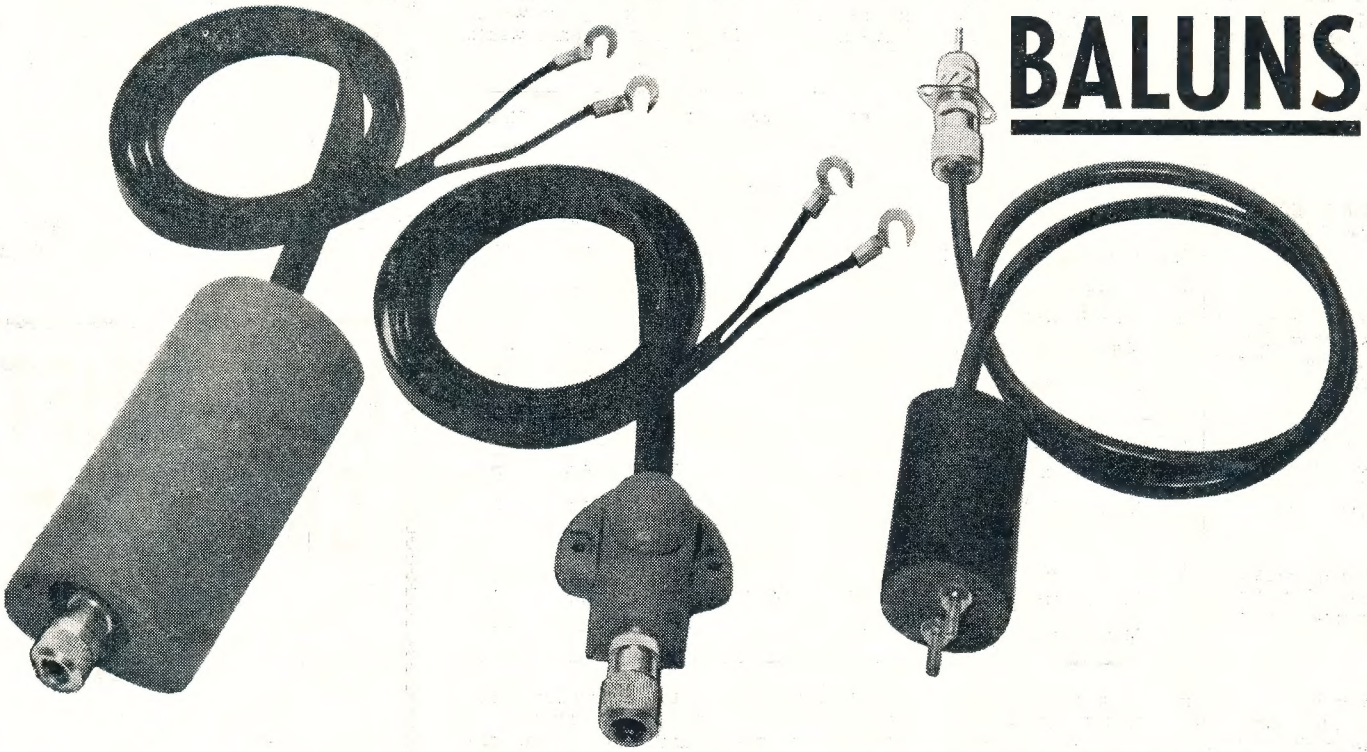

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TRANSISTOR RADIOS*

DESIGN CRITERIA

For a specific receiver, the minimum battery voltage considered by the circuit designer is largely dependent upon the circuit configuration adopted in the audio output stage. (The various circuits will be described in future issues.) For the conventional transformer, coupled push-pull stage and the single-ended or transformerless output stage, the design criteria is that all stages of the receiver shall continue to operate normally when the supply potential has fallen to the minimum designed value —some two-thirds of its normal value.

To a first approximation the load on the battery constituted by the receiver may be considered as a fixed resistance. Consequently, when the supply potential falls to two-thirds of its nominal value the current consumption of the receiver will also fall to two-thirds of the nominal figure. The power consumption at this "end of life" point is therefore $(2/3rd)^2$, i.e. 44% of its original value. Since the a.f. output stage has the largest power consumption of any section of the receiver, it becomes clear that the circuit designer contends that the end user will replace the battery before the a.f. output power of the receiver has fallen to half its rated value and the increase in distortion with class B operation that this drop in supply potential entails.

Normally, the listener will request battery replacement before the arbitrary "end of life" point is reached because of inadequate volume, excessive distortion or both. Under extreme conditions, the local oscillator may cease to function over the entire tuning range, and obscure faults may appear to be present.

The fall in battery potential results in a smaller increase in distortion with the "split load" type of output stage (to be described in a future issue).

END OF LIFE

The variation of terminal voltage with life, of the type of cell normally used in radio receivers, exhibits, after the initial "jump," a gentle decline for most of the working life, falling rapidly at the end of life. It is wise, therefore, to discard and replace any battery delivering as low as three-quarters of its nominal value on load, as in a comparatively short time it will have reached the end of life point manifesting in the receiver the effects previously discussed.

In contrast, the mercury cell maintains closely its rated terminal voltage throughout life; however, the higher cost factor does not normally permit its use in transistorised receivers.

MEASUREMENT UNDER LOAD

Battery voltage measurements must always be carried out under load conditions, i.e. with the receiver tuned in to a local station and with the volume turned up to a reasonably high level for the type of receiver concerned. Of course, where battery replacement fails to ensure satisfactory operation, normal fault-finding technique (to be described in later issues) must be applied.

● This article is another of the series on transistor portable receivers and cordless radios. In this issue particular attention is given to problems associated with battery replacements and to the basic techniques of printed wiring.

POLARITY OF SUPPLY

Where energisers are used the connections are made with flying leads having non-reversible contacts. With single cell supplies, the spring contacts are usually arranged so that contact will not be made unless the cell is correctly inserted.

Although reversing the polarity of the power supply may not destroy transistors of the alloy junction type, it could well result in a deterioration of performance.

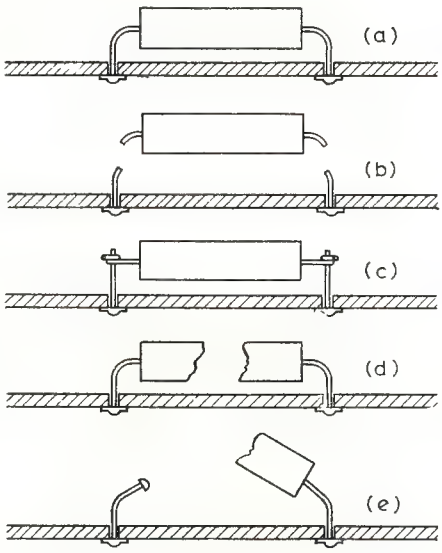

Fig. 1.

PRINTED WIRING

Techniques now being encountered by service engineers include printed wiring, a term used to describe electrical circuits which take the form of thin copper strips on insulating board.

Since the techniques necessary in servicing printed wiring are somewhat different from those used in conventional circuitry, it is desirable for service personnel to acquire a thorough knowledge of the subject. There are a number of manufacturing processes including photocopy and offset printing and the following brief description of the most commonly used manufacturing process may help readers to become familiar with the technique.

SILK SCREEN PRINTING

The circuit diagram is first rearranged so as to form a convenient flat layout which is photographed and transferred to a silk screen. An acid resist paint is then squeegeed through the screen to the copper surface, the painted areas representing the conducting surface required.

The board is then transferred to an acid etch bath where the unwanted copper is removed. After etching, the acid resist is removed and the board thoroughly cleansed. It is then provided with a protective layer of flux so that it may be stored without tarnishing. The board is now ready for component insertion through pre-punched holes.

IMPORTANCE OF PRINTED WIRING

Once a correct layout is achieved in printed wiring, all further models are identical. The complete item is compact, lightweight and reliable. Components are easily added by automatic methods and high production rates are possible.

TYPES OF PRINTED WIRING

Individual manufacturers use different techniques of printing, but the boards will all have much the same appearance. In some processes, the circuit is not etched but punched out of foil and attached to the board. This method is slightly more expensive than the more usual etching process. In others, the bituminous coating is not applied, the ink resist being sufficient for most requirements. Sometimes the wiring printed on to both sides of the board.

Where the printing technique includes printed inductors, capacitors and resistors, the name "printed circuit" is more correctly used.

CARE OF BOARDS

The preceding information should assist in appreciating the precautions which are necessary when servicing printed circuits.

The "wiring" produced on the laminate boards is extremely thin—about 0.0015" to 0.003"—and is bonded to the board. Flexing the board will result in the foil being stretched and the strain may fracture the copper, thus forming hairline cracks in the conductor.

When connections are made to the foil, great care must be taken to prevent excessive heat from melting the adhesive and damaging components. A 25w. soldering iron will be quite sufficient to effect repairs and, if applied only long enough to melt the solder, should not damage the circuitry.

Acid fluxes should not be used on printed wiring; however, the more common cored solders do not contain this type of flux.

CIRCUIT TRACING

Due to the single-plane layout used in printed wiring, circuit tracing is somewhat simplified. The components are not normally on the same side of the board as the wiring, however the problem of locating components when fault-finding may be obviated by placing the board in front of a bright lamp.

(Continued on Page 13)

* Reprinted from "Mullard Outlook," March-April and May-June, 1961.

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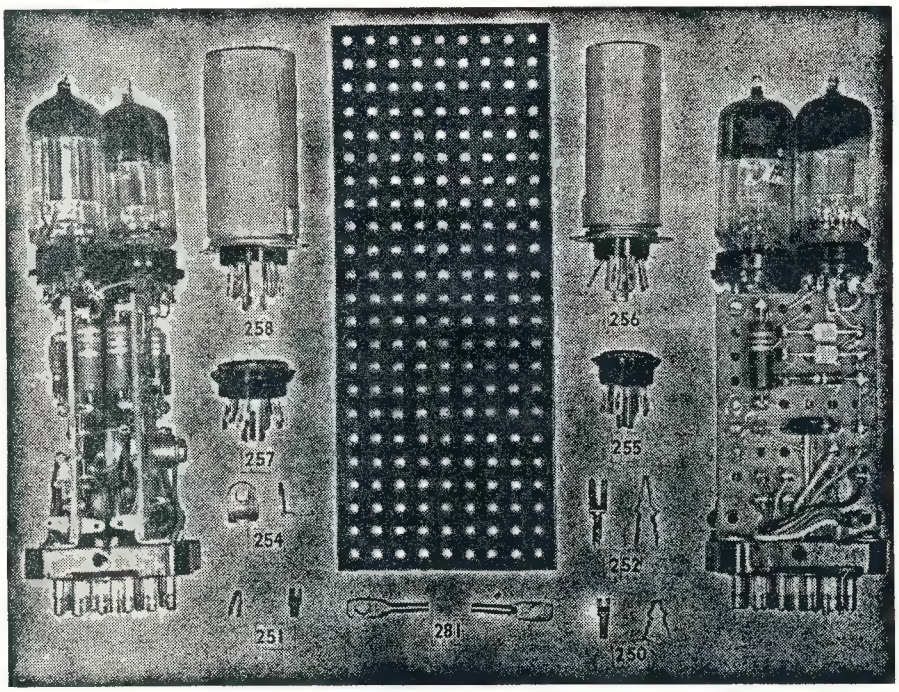

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Noise Factor of Some V.H.F. and U.H.F. Glass-Base Valves*

G. R. JESSOP, A.M.Brit.I.R.E., Assoc.I.E.E. (G6JP)

DURING the past few years Amateurs and professional Radio Engineers have spent a great deal of time and effort in searching for ways and means to improve the input stages of converters and receivers for the 2m and 70cm bands. Each new valve type that has been released has been given a very thorough testing in one way or another and the results have been reported from time to time, often with outstanding noise performance claims. Some such claims are even to be found in advertisements appearing in Amateur Radio periodicals. Very little real data, however, appears to have been published regarding the noise factors of the valves produced by the various makers and the purpose of the information presented in this article is intended to clarify this somewhat unsatisfactory state with some comparative information recently made available to the writer.

No doubt some of the claims that have been made in the past have been due to the belief that a thermionic diode noise generator, like a camera, "cannot lie." The noise generator is capable of repeating its results, but they will not necessarily be correct. In fact, a considerable amount of work has had to be done in recent years to obtain agreement between one establishment and another, let alone between one country and another.

The need for very low noise i.f. amplifiers for radar and other applications has helped in the production of reliable methods of noise factor measurement at 45 Mc.† while the potential introduction of television in the higher frequency bands in the region of 400-1,000 Mc. has prompted work on valves and measurements for this range. The latter has, of course, had a marked bearing on the economic aspects of v.h.f./u.h.f. valve design. So much so, that the glass base form, which is always cheaper than the disc seal style, has made such advances as to be a strong competitor to the disc seal type for use below 1,000 Mc. except where wideband amplifiers are required.

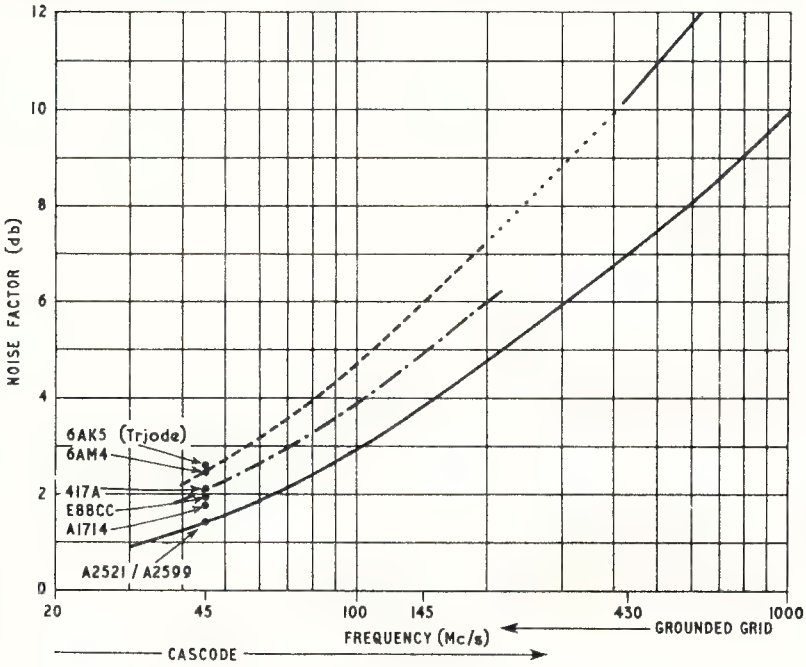

Fig. 1. Graph showing the variation of noise factor with frequency for some of the better valves for use in r.f. stages.

Readers will probably have seen noise factors claimed in some advertisements which are theoretically unattainable. These are probably due to the noise measuring apparatus being even more optimistic than that used by the writer! The valves on which measurements have been made using the same apparatus are shown in Table 1.

These figures, together with the curve of Fig. 1, give a fair picture of the performance of valves available at present.

From Table 1 it can be seen that a valve such as the 417A, which was designed for wideband applications, is a significantly poorer performer than the A2521-A2599 valves which were designed specially for u.h.f. input stage service.

The following comparative figures of noise factor from Fig. 1 are interesting:

Valve	45 Mc.	145 Mc.	430 Mc.
6AM4	2.4	5.9	10.2
417A	2.1	4.9	8.7
A2521/ A2599	1.4	3.8	7.0
A1714	1.9	4.6	8.2

It is clear from this data that the best u.h.f. triodes on glass bases are available in the U.K. ●

Valve Type	Origin	Noise Factor at 45 Mc.
ECC85	Holl'd	2.5
E180F (as pentode)	Holl'd	3.5
„ (as triode)	Holl'd	2.4
D3A (as pentode)	Germ.	2.6
„ (as triode)	Germ.	2.0
6AM4 (u.h.f. triode)	U.S.A.	2.4
6AJ4 (u.h.f. triode)	U.S.A.	2.4
6AK5 (as triode)	U.S.A.	2.5
417A (wideb'd triode)	U.S.A.	2.1
6CW4 (narrowb'd tri.)	U.S.A.	2.1*
E88CC (double triode)	Holl'd	2.0
A1714 (u.h.f. triode)	U.K.	1.9
†A2521 (u.h.f. triode)	U.K.	1.4
‡A2599 (u.h.f. triode)	U.K.	1.4

* By de-tuning, a noise factor of 1.6 db. is obtainable.
† U.S. type 6CR4.
‡ U.S. type 6CT4.

Table 1.

★

Lionel VK2CS and Vic VK2VL at the Gosford Field Day on 26th February.

★

24th B.E.R.U. CONTEST RESULTS

The following were the placings of Australian stations in above Contest:—

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26	VK2GW	2015	175
53	VK2APK	1390	122
67	VK2VN	960	72
77	VKXJ	780	48
84	VK5JT	610	43
93	VK4SD	365	21
99	VK2OW	245	13
	*VK5RO	145	16
	*VK5RK	115	11

* Invalid—No declaration.

LOW POWER SECTION

Posn.	Call Sign	Pts.	Contacts
6	VK7SM	1200	93
9	VK4SS	880	64
10	VK3ZC	835	59
13	VK2CK	700	56
17	VK3RJ	244	17
18	VK7RY	135	7

* Reprinted from R.S.G.B. "Bulletin," March '61.

† It has now been agreed by the industry and Services that this frequency should be 48 Mc. for future tests.

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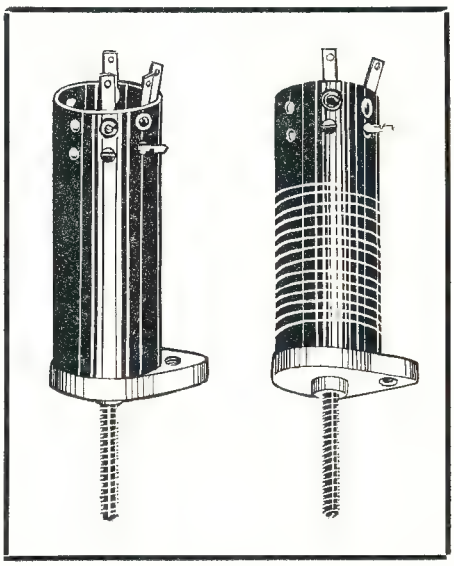

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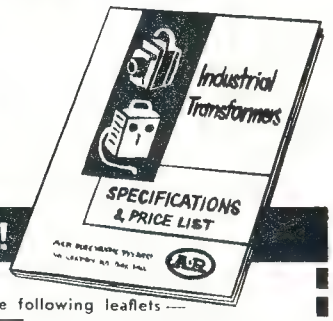

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National Field Day Misadventure

With the National Field Day approaching, great plans were made by VK2 Stations, viz.: Sid VK2SW, Pierce VK2APQ, Ted VK2FE, Roy VK2KO, Ron VK2ZRM, and Ron WIA-L2025 in anticipation.

Equipment, tucker, location, etc., were gone into with fantastic detail, the major decision from all the meetings being the selection of Roy VK2KO as "Greasy"—beg your pardon!—Kook.

Anyway, came the day. Bright and early three car loads of miscellaneous started south, the leading car carrying Ted VK2FE and Roy VK2KO got as far as Tom Ugly's Bridge and "bang!!" A trailer tyre blown to smithers and no spare!

With great determination and fortitude the party scouted the hills of Hurstville trying to purchase a second-hand tyre and tube—19". What!! (Noah used this size as bollards on the Ark.) After 1½ hours' search, Roy VK2KO located one. He's still crying about the price he paid.

Proceeding onward after repairs had been effected, the party arrived at their destination, being a mountain peak nine miles south of Macquarie Pass, and proceeded to set up camp. Other than losing pints of blood to leeches, extracting thorns, plus a twisted ankle, tents and antennae were erected.

Power supplies and radio equipment were installed and then the fun started! "Sid!! **You do** have to filter 522 genemotors! **They do** push out a bit of QRNellie!" "And take the blasted thing from under my chair!"

The noise was terrific—three engines belting away—four raucous voices calling CQ! Brother!! Aspro will ease it!!

Ten o'clock Saturday night the rot set in. Sorry, it set in earlier, "belch!" Roy outdid himself and nearly "did" everyone else with his steak, chips and egg tea. "You beauty!" "Didn't know it took 4 lbs. of dripping to cook 4 lbs. of steak and 8 eggs." "Ya learn every breath ya take!" "Belch!" "Who called the cook a ———"

Anyway at ten o'clock, a terrific clatter announced that one "donk" had broken its crankshaft. To add fuel to the fire, the 40-80 metre rig went bad and was not immediately repairable. "Will I tell 'em what was wrong with it, Ted?" Blush!!

Sid VK2SW with Pierce VK2APQ in the background.

"Fatty," sorry, Pierce VK2APQ, had a whale of a time on 2 metres, working a total of 45 stations with an average report of 5 and 7 to 8 into Sydney—and he's still crowing.

Ron VK2ZRM did a terrific job on antennae and washing greasy dishes, whilst Ron WIA-L2025 was plant engineer and worked like a trojan keeping power up to the operators.

Sunday evening saw six weary, dirty, but nevertheless happy Hams wending their weary way homeward, vowing that next year they would really be prepared and give the VK3 boys a blooming run for their money!

TRANSISTOR RADIOS

(Continued from Page 9)

Some manufacturers print component references on the same side of the laminate as the wiring, and this of course simplifies circuit tracing.

The use of service information is the best solution; most service sheets include a drawing of the board as it will be seen during servicing, with component references clearly marked.

FAULT-FINDING

Most boards are coated with an insulant after manufacture, therefore, care must be taken to achieve proper contact with the copper foil. The insulant serves not only to prevent accidental short-circuit of the exposed foil to other parts of the circuit, but also helps to reduce oxidisation.

The protective coating must be removed from the measuring points before any connection can be made—acetone applied with a soft cloth or brush will serve this purpose.

The detection of hairline cracks in the foil is facilitated by the use of a powerful lamp and a magnifying glass.

COMPONENT REPLACEMENT

Faulty components should be removed with great care. Flexing the laminate, peeling the foil or dropping solder on to the remainder of the circuit should be avoided.

SMALL COMPONENTS

Transistors, capacitors and other components may be removed as illustrated in Fig. 1. The leads should be cut as close to the component as possible. The wires left on the board should be cleaned and the leads of the new component looped around them as shown in (c). Solder may then be applied, care being taken to ensure that the heat does not damage the board or component, or melt the solder under the board.

Should the cutting of the leads be too difficult, it may be possible to cut the component in half as shown in Fig. 1 (d). The parts remaining on the leads should be removed and the leads cleaned as in Fig. 1 (e). The new component can then be added as before Fig. 1 (c).

LARGE COMPONENTS

Audio and i.f. transformers may be removed by heating the soldered connections then lightly brushing-off the solder with a stiff brush. A bristle or camel-hair brush is also suitable but may not survive many operations. Alternatively, a sharp-pointed metal rod, such as a scriber, may be used to pick off the molten solder. With any of these methods, the splashing of solder on to other parts of the circuit must be avoided. ●

(To be continued.)

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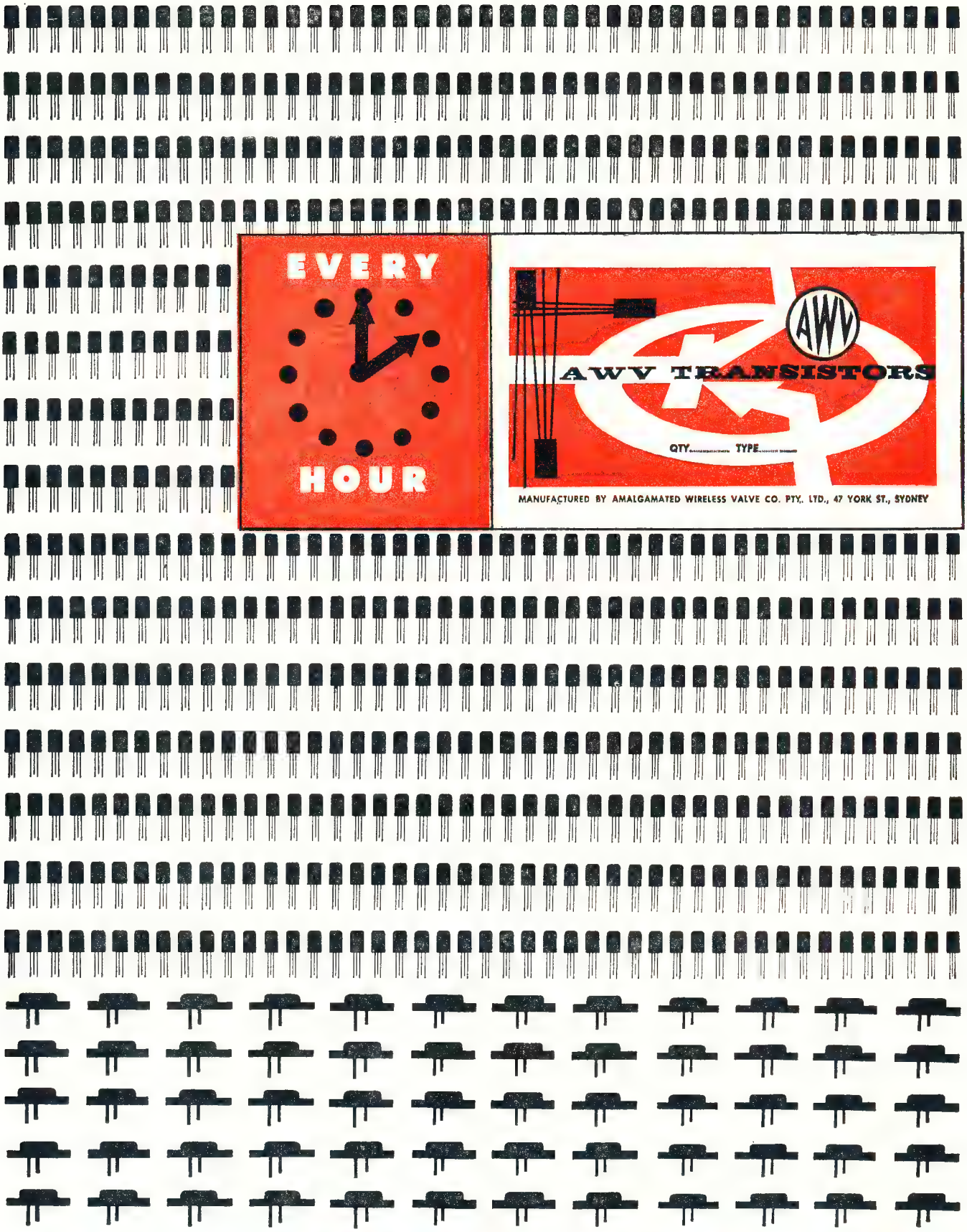

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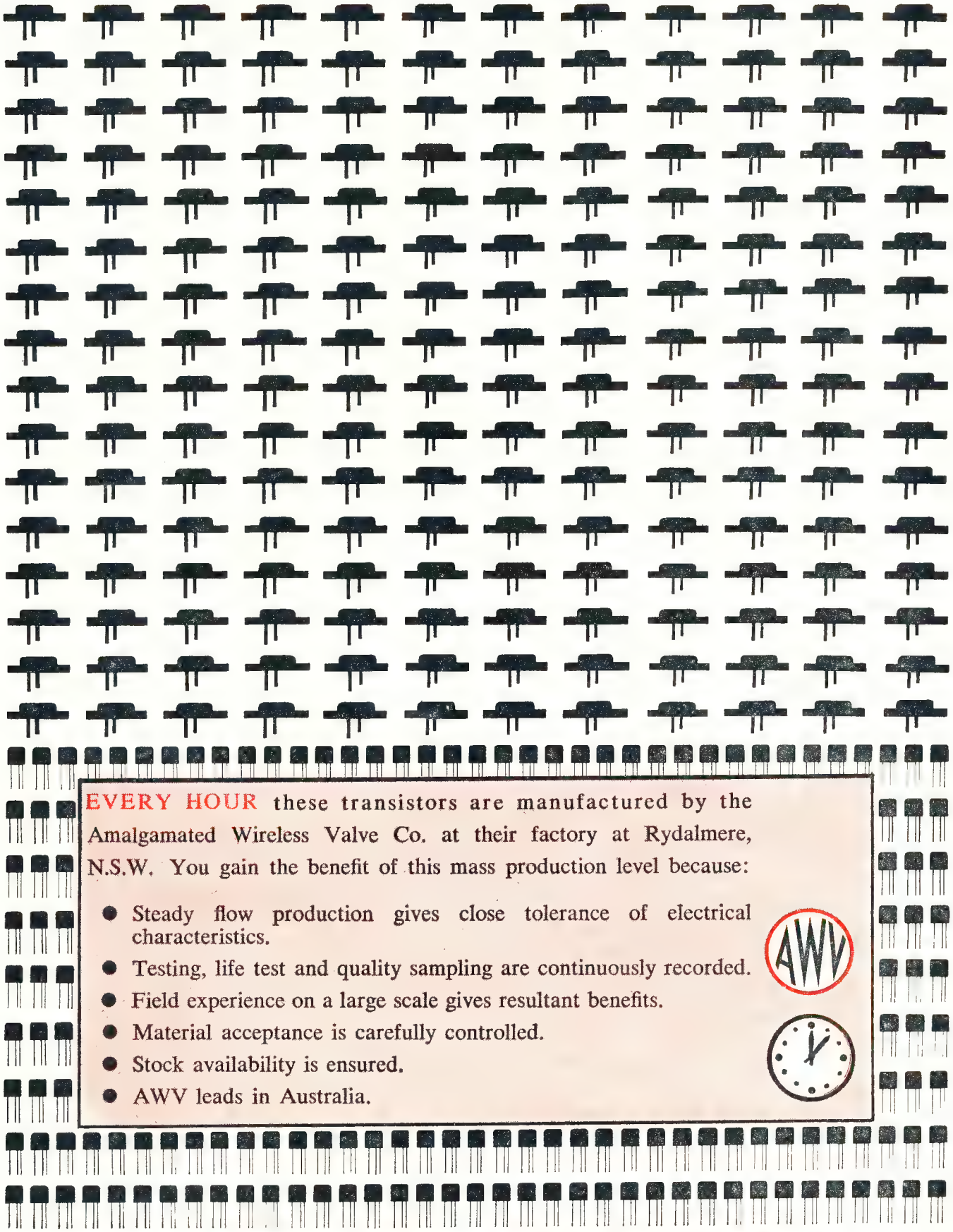

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VK-ZL DX CONTEST, 1961, RESULTS

The Federal Contest Committee of the Wireless Institute of Australia has pleasure in presenting herewith the results of the 1961 VK-ZL DX Contest.

From remarks on the logs and from local observation it appears that conditions generally were pretty bad. Some of the overseas stations also indicated that they would like to hear more VK and ZL stations in the Contest. So let us try to get a few more on the air next year.

Some very good scores were obtained, however, and our thanks to all those who took part.

We hope to meet you again next year. Best DX and 73, Federal Contest Committee, W.I.A.

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3RJ		2600	735		3335
3XB	2670				2670
3YD	1570				1570
3AKV		1380			1380
3UM		465			465
3KS			110		110
VK4SS	1100	1785	365		3250
4DO		1290	1165		2455
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5KO	585	845	995		2425
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2APK		1185	830		2015
2ADE		55	760		815
2AKV		210	55		265
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VK4SN		310	345		655
VK5MS		6730	1060		7790
5QR		2545			2545
5NO		1395	305		1700
VK7WA		1340	110		1450
VK8AV		555	160		715
VK9NW		1260	1660		2920
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1NG	1640	5390	2945	635	10610
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2AYJ		5580			5580
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1AAS		3230			3230
1HA	165	1970	835		2970
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W1GYE	390 ,,	WA6OZL	42 ,,
W1AWE	220 ,,	WA6NNN	Check
W1WY	128 ,,	W6UNF	Check
K1LBH	30 ,,	K7KGP	1008 pts.
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WA2OJD	377 ,,	W8JIN	3852 pts.
W2MNW	1 ,,	K8VIK	124 ,,
W3DBX	1056 ,,	W8MCC	65 ,,
W3MCG	532 ,,	W8KSR	52 ,,
W3BYX	136 ,,	K8VUH	40 ,,
W3VKD	77 ,,	W8MMZ	24 ,,
K3PDE	24 ,,	W9IHN	252 ,,
K3OWE	1 ,,	W9CLH	105 ,,
W4BJ	2729 ,,	W0BMM	2208 ,,
W4DQS	1416 ,,	W0MPW	1034 ,,
W4SNU	462 ,,	W0MCX	50 ,,
W4HYW	54 ,,	VE7BFN	490 ,,
W5WZQ	4446 ,,	VE3BWY	260 ,,
W5KC	2016 ,,	KP4CC	154 ,,
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DL4VO	10 ,,	OH2SB	16 ,,
F8TM	77 ,,	OH6AB	15 ,,
F2DG	9 ,,	OH2BC	6 ,,
G5WP	648 ,,	ON4FU	1062 ,,
G6XN	445 ,,	OZ7KV	15 ,,
G2DC	294 ,,	OZ3CF	92 ,,
G3JUL	96 ,,	OZ2NU	9 ,,
G3WP	2 ,,	PA0VB	253 ,,
GW3JI	180 ,,	PA0TAU	96 ,,
HA1KSA	200 ,,	PA0NIR	28 ,,
HA5BI	96 ,,	PA0WAC	18 ,,
HA8CF	60 ,,	PA0PLM	16 ,,
HA8KCU	28 ,,	PA0WDG	Check
HA1SB	24 ,,	SM5LL	1026 pts.
HA3KMF	12 ,,	SM5BEU	270 ,,
HB9MO	645 ,,	SM5AJU	91 ,,
HB9DX	63 ,,	SM3EP	42 ,,
HB9UD	12 ,,	SM5CAK	20 ,,
LA3UF	12 ,,	SM3BIZ	Check
LA2B	6 ,,	SP6FZ	640 pts.

Europe (Continued)

SP9KJ	253 pts.	UB5FY	24 pts.
SP1AAY	4 ,,	UB5TQ	6 ,,
SV0WI	176 ,,	UC2AA	198 ,,
TF3AB	4 ,,	UC2CZ	45 ,,
UB5MZ	50 ,,	UR2BU	9 ,,

Asia

JA2JW	4773 pts.	JA1CZG	126 pts.
JA1VX	4662 ,,	JA8GR	84 ,,
JA1CPM	1980 ,,	JA6AKW	70 ,,
JA8FC	1150 ,,	JA1WM	50 ,,
JA1CJN	594 ,,	JA1EM	48 ,,
JA8LN	434 ,,	JA1FTL	42 ,,
JA1BTG	350 ,,	JA8AAC	20 ,,
JA1BUN	207 ,,	JA1IIB	1 ,,
JA1BGF	153 ,,	JA1CY	1 ,,
JA1BRK	150 ,,	EP2BB	264 ,,
JA6BCV	126 ,,	XZ2TH	162 ,,

Oceania

KH6IJ	4059 pts.	KW6DG	6665 pts.
KH6DIG	816 ,,	VR1B	5000 ,,
KR6LY	209 ,,	ZK1AR	1694 ,,

Africa

FA8RJ .... 187 pts.

Late Arrivals

DM2ABB	6 pts.	ON4LX	300 pts.
DM2ABL	242 ,,		

PHONE—

North America

W3HUG	30 pts.	W6ISQ	65 pts.
W3AKG	Check	K7NNJ	16 ,,
K5MDX	990 pts.	W8JIN	476 ,,
W5KC	429 ,,	K9ECE	36 ,,
W5IKT	66 ,,	VE3DDI	28 ,,
K6UVX	432 ,,	XE1CV	243 ,,

South America

HK3LX	98 pts.	YV5AKP	12 pts.
TG9AD	615 ,,		

Europe

CT1YE	20 pts.	SM5LL	18 pts.
EA3JE	16 ,,	SM5CZQ	6 ,,
G6XN	45 ,,	SM5BFE	4 ,,
OE1RZ	32 ,,	SM5BWG	1 ,,
OH5AB	6 ,,	SP9KJ	1 ,,
SM3EP	66 ,,	UR2BU	6 ,,
SM3AZI	55 ,,		

Asia

JA6CY	816 pts.	JA1AMH	4 pts.
JA2JW	180 ,,	JA1BUI	1 ,,
JA1CYG	98 ,,	JA1CBY	1 ,,
JA1FKY	84 ,,	HM4AQ	175 ,,
JA2AEY	80 ,,	9M2DQ	735 ,,
JA3BBG	21 ,,	9M2AD	396 ,,
JA8FC	20 ,,		

Oceania

KH6IJ	810 pts.	VR2BZ	360 pts.
KR6MF	242 ,,	ZK1AR	338 ,,
KW6DG	2550 ,,		

Late Arrivals

ON4LX .... 2 pts.

RECEIVING—

ISWL/K2-7079—B. Adams .... Check
SWL/W5—R. Harris .... Check
VE3-PE/IR—D. Falke .... Check
JA1-3396—Y. Ishino .... 1806 pts.
BRS-15822—R. W. F. Thomas .... 645 ,,
BRS-6604—E. H. Sherlock .... 324 ,,
HA9-007—E. Matzon .... 120 ,,
SM5-2735—K. Nystrom .... 90 ,,
YO2-1081—K. Ady .... Check
YO2-1000—S. I. Iulius .... Check

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DX

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Sub Editor: ALAN SHAWSMITH, VK4SS, (Phone 4-6526—7 a.m.-4 p.m.)
35 Whynot St., West End, Brisbane, Qld.

ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

How did you find DX this past month? Overall, it would seem that the bands have been as expected; that is, only fair, with signals generally somewhat down and uncertain.

In an attempt to find out just how much DX can be heard and worked on 3.5 Mc. my listening this past few weeks has been concentrated on this band with, I am sorry to say, not very encouraging results. For the first two weeks of Feb., this band was very poor indeed and the noise level very high. However, it improved considerably towards the end of the month. All continents were heard, with the exception of South Africa. The nights of the 24th and 25th were perhaps the best of the month, when W was easily workable and some Oceanic prefixes were S8-9, such as ZK1, KH6, KG6, etc. Later on, towards morning, the Europeans were very good, but not workable with my QRP and 80 mx dipole. With a bit of power and a good antenna, I see no reason why these Europeans can't be worked on 3.5 Mc. They seem to be fairly consistent and best an hour or two before dawn. I would like to know if any VK can, and does, work them at this hour.

The 7 Mc. band still has a fair bit of DX on it, from 1500 hrs. G.M.T. onward to 2100 hrs. G.M.T. North Europe shows up firstly, and then the SR seems to expand like a magic eye and stations from Mediterranean, North Africa, South Africa and Northern Asia come in at workable strength.

14 Mc. has been very scratchy in the early afternoons to the East, but the L.P. circuit to the West in the mornings around 2100 hrs. G.M.T. has been open with good signal strength. This latter circuit on 7 Mc. seems to be a thing of the past. I would like to know if some of those VK5s who have done so well previously can still work W on L.P. around 2100 hrs. G.M.T., on 40 mx.

NEWS AND NOTES

DX-peditionist Danny, says he had a really tough time in the good ship "Yasme"—covered over 800 miles from the Marquesas Islands to Tahiti. He nearly got wrecked, but this wouldn't be a new experience to him. He is operating now with the call FO8AN—actually he's using George's (FO8AC) rig from George's shack. The only other Hams active from FO8 are FO8AB and FO8AQ. FO8AC is the only sideband station. Dick KV4AA and Jock ZL2GX are both helping in the preparation for his future DX, but he expects to be in Tahiti for about three months. He was disappointed in the lack of publicity in VK about the Marquesas adventure—hopes that this part of FO8 will become a new country, in the forseeable future.

The only Ham on Campbell Island is Ian ZL4JF; in fact, he's the only Ham that's ever been on the island. He is active on both a.m. and c.w., and says there is a chance of a sideband signal emanating from that lonely isle next month. His QSL is one of those attractive fold-over types—manager is Jock ZL2GX.

Incidentally, Jack ZL3VB has left Chatham Island and is now in Wellington. I believe that there's a chance that he will not return. This would be unfortunate as he's the only Ham on this Island too.

Mention was made last week that Mike G3JFF/MM (formerly YJ1MA) had arrived in Fiji. Now comes the news that his new call is VR2EA.

Quite a few VK9 (Papua) stations are on the air, but probably the only active Ham from New Guinea is Ian VK9VM, from Rabaul. Work him on c.w. in the evenings E.A.S.T.

PJ2AA can be worked on 14 Mc. s.s.b. from his QTH of Aruba, Netherlands Antilles (or to give it its old name of Netherlands West Indies). This is a good one, but you may find some difficulty in his coming back to your call. George runs a sked with W land. Look for him on the high side of the band about 1145z.

For those wanting Zone 12, Ray CE3CR has been very active and working many VKs over the last couple of weeks on 14 Mc. s.s.b. at about 9 p.m. E.A.S.T. He uses a 2 element 3 band quad and a KW1 provides the r.f. His signal is really strong in VK. QSL to Box 3463, Santiago, Chile.

More new prefixes: UW3 (Eugene UW3UF, from Gorky, which he spells as Gurkiy, is a s.s.b. operator; work him at 1210z). UW9 (Vlad UW9KC from Sverdlovsk; work him at 1145z). Perhaps all the UA prefixes will be augmented by UW ones. You might think that 8J1AD is some new African Republic. It is just the new prefix for a Japanese Antarctic station. Listen for Nishi from Syowa Base, Antarctica, at about 5.45 p.m. E.A.S.T. on 14 Mc. c.w. QSL via the J.A.R.L. (Very many thanks Ken VK3TL, for all the above informative notes. —Al.)

Did you work VR5RZ? For QSL clarification, he is John VK4RZ. (Where to next, OB, Al.)

DL9PF says he is going to FC land next June for a two weeks' DX-pedition. de K6JC.

VU2NR, contrary to previous reports, does not have permission to operate from AC3. He is unable to go due to the political situation there. Some of the Ws are trying to contact AC3PT who is presently in N.Y.C. with the U.N., in hopes that he may be able to help. VU2NR says he would leave immediately after receiving permission.

TL8AC has a new Drake rx and expects to be on s.s.b. in the near future.

ZD8JP is reported active on either 14020 or 14065 kc., around 2100 G.M.T. He must QRT around 2150 G.M.T. for lack of power. He skeds ZD7 every Thursday, but didn't say what time.

Jordan: Bryan MP4QAO, etc., has applied for a licence to operate for a short period from Jordan, but has met with difficulties, because of JY2NZK's previous activity in that country. The conditions of JY2NZK's licence, seem to have been overstepped considerably.

5H3 is the new prefix for VQ3, Tanganyika.

ZS2MI Marion Island. ZS5UP says that ZS2MI is active only on Sunday between 1400 and 1500 G.M.T. around 14060 c.w.

Rodriguez Island: VQ8BC will be going to Rodriguez in May 1962. His call will most likely be VQ8BCR. He will be active on 14 and 21 Mc. c.w.

Bajo Nuevo HK0: The HK1QQ trip with the Malpaolo gang is now set for April 27, if all goes as planned.

(All the above by courtesy of Bob K6CQM, Editor DX'er.)

Gus W4BPD gives us some info. about his next DX-pedition, which will commence from VQ9 shortly. If you still need a QSL for a QSO from Gus' first expedition try a card to W4ECI, who will be the QSL manager from now on. Freqs. to be used are 14035, 14065 kc. for c.w. and 14120 and 14130 for s.s.b. On 15 metres, 21034, 21065 c.w., and 21120 to 21130 s.s.b. Call him no closer than 10 kc. up or down. 3.5 and 7 Mc. will also be used if conditions permit. (From Frank VK2QL.)

ACTIVITIES

Ken VK3TL had a quiet month, but worked the following—14 Mc. c.w.: KM6CE, UW9KCA, VK9GP, VK9VM (New Guinea). 14 Mc. phone: FO8AN, HS1X, HZ1AB, I1RM, OH2NB, VS4BY, XW8AS, ZL4JF (Campbell Is.). 21 Mc. c.w.: OH2PO, OH3WH, SM5BVF, SM5LF, VU2JA. QSLs rcd. during month: AP5CP, DJ2AE, DJ-2RE, DL1XZ, DL7EN, DL9KP, DU6TY, EA7HZ, HA1KSA, HS1X, I1IF, I1WBK, I1ZTF, KJ6BV, KW6CGA, OZ4H, UA3LZ, VS4BY, VS4RS, VS-9ACS, YJ1MA, ZC4TX, ZE7JR, ZL4JF (Campbell Is.), 4S7YL.

Eric BERS-195 added the following to his already huge log—3.5 Mc. c.w. hrd.: JA1YL, JA6AK, OK3KJF, UA3KAA/3KAB, UB5CW, UT5CQ, UC2BW, W. 7 Mc. c.w.: DJ4SP, KL-7MF, KR6AU, KR6MD, LA7RF/VK2, SP5KAB, UA3KWB, UA0JK, UA0EW, UA0MI, UB5KSR, UB5VW, VR2DK, 9M2FR. 14 Mc. c.w.: AP5CP, BV3HPT, DU1FM, EP2BK, HP1IE, HZ1AB, KC6BD, OA4FN, OX2LR, KV4CI, TI2WA, UG-6KAA, UH8BI, UQ2KDD, VK9GP, UD6AT, VR2EB, VR4CN, VS1FZ, VS4RS, VS4RM, YJ-1MA, YV5AE, 4S7NE, 4X4HK, 9K2AM, JA-0WW/MM, LA7RF/M, W3MCJ/MM. QSLs rcd.: BV1USC, HL9KT, JZ0BM, KX6AJ, OH3WM (3.5 Mc.), UP2KNP, UR2DZ, VQ3HZ, G3GJQ/VS9K, ZC4TX, 6W8DD, 9M2FS.

Hal VK4DO reports that conditions were poor during the times he was active. His list —14 Mc. c.w. wkd.:: W, K, JA, F9BG, FO8AC, HC5CN, HC2IU, KR6AB, UA1KBB, UA3CT, UA3TY, UA4KHW, UQ2KDD, VS1KF, YS4RM, YV5AQC, SN2LKZ. 21 Mc. c.w. wkd.: W, JA, KH6, VS6EM, ZC4TX. 14 Mc. phone wkd.: W, KH6, FO8AC, VS1FZ, VS4RM. 14 Mc. c.w. hrd.: W, K, KH6, BV3HPT, DJ5LT, DL5FX, F8FE, F3TZ, HC1AGI, HZ1AB, KP4CC, LU9WA, MP-4TAC, HP4TAM, UA1DR, UA1KAQ, UA2AW, UA3KT, UA3RM, UA3KWA, UA4KAB, UA-4KHR, UA9EW, UB5JX, UB5KAW, UB5KSR, UC2CS, UC2KAR, UI8KAA, UI8KBA, UL7FA, UL7KDT, UM8KAA, UP2KAF, VU2GE, VU2KU, VU2TN, XZ2BB, XZ2TH, ZK1AR, 4S7EC, 4S7NE, 5T5AD, 9K2AM. 14 Mc. phone hrd.: W, K, DU1AN, DU1MR, HK3TS, HK3TZ, I1ANY, KR6AU, OA4CB, VS1GC, XW8AI., ZK-1BY. 21 Mc. c.w. hrd.: W, K, JA, SV0WZ, UA3KYA, UA9OC, VS9MB. 14 Mc. phone hrd.: W, EP2BK, VS4RS.

Don L2022 reports a fair month with these hrd.: 3.5 Mc. c.w. W6IZD, W2KQT. 7 Mc. c.w.: LA1VG/MM, Ws, VP6PJ, VR2EA, DU7SV, KR6AR, JA1CG, VR1B, UA0KCI, UB5FP, VP9EU, VE3PK, VR4CV. 14 Mc. c.w.: CT1NT, 4X4MB, HC2IU, ON4DY, LZ2KAB, VS4RM, KV4CI, OH5RH, BV3HPT, UQ2KDD, UI8KAA, OK1ZL, UM8KAA, VU2RA, UD6AX, PY2CD, UF6OF, EA1BC. 14 Mc. a.m.: YV1CQ, VU2PP, HM9A, KR6MU, 4S7YL. 14 Mc. s.s.b.: UA0VQ, KR6BA, KG6AAY, KX6BU, XW8AS, OA4J, CX2AX, PY2BPE, FK8AE, HS2M, HS1B, KH-6SB, EP2AG, KS6BV, F9HF, UA2DW, HB9SI, GI3IVJ. 21 Mc. a.m.: G5JZ, JAs. 21 Mc. c.w.: JA1HG, UA0LLI, G3IJX, UL7FA, F2MA, UA-9KOG. QSLs rcd.: GC2FMV, KH6EDY, KH-6EGO/KH, ZS6AOW, 4S7EC. (Don now has 100 countries confirmed.)

Rob VK9RO comes to light with the following DX worked: 14 Mc. s.s.b.: JA6MAZ, KR-6KS, VR2BK, KR6DZ. 21 Mc. a.m.: DU1MR, KR6LY, G2CNN, G2KO, UA1DZ, G3OKQ, G6DW, KN5MOY/MM, F2YT. (Thanks, Rob, and welcome to the ranks. Can I sked you each month for any DX news? Please let me know —Al.)

Frank VK2QL has been active on 80 mx and reports working the following: JA6AK, JA0SU, KL7AUG, VE7VC, VE3AGX, VR5MC, KV4CI, and numerous Ws. He hrd. DL8BL, UC2AD, UO5AA. 7 Mc. c.w. on the long path, he wkd.: G5WP, G6QB, CX2BT, 5H3HD. Hrd.: HZ1AB, ZC4IP, CN2BK, CT1DJ, UP2NM. QSLs rcd.: UC2AA, PJ3AD, G3GJQ/VS9, VS9KAC, HP1IE, VR1M, KC6AT (ex-KC6ZZ).

Yours truly, Al VK4SS, worked on 3.5 Mc. c.w. (between 0900-1100z): G3JFF/MM, ZK1BW, VK9RO, JA0ACO, Ws, KH6, ZLs. Heard very weakly at 0750z on 27/2/62, G5WP.

ADDRESSES

BV1USC—Box 196, A.R.S.E.C. (S.A.A.T.), APO 90, San Francisco, California.

HL9KT—Radio Co., 304 Sig. Btn., APO 301, San Francisco, California.

JZ0BM—Bert Modderman, C/o. Huize Middendorp, Midden Dorplaan, Warmond, Holland.

SUMMARY

Conditions may liven up for a while during the autumn period. Between the two extremes of mid-summer and mid-winter, i.e. spring and fall, the bands seem to be at their best. I'm hoping that 80 mx may let a few signals through during April and May. The QRN should subside as the summer fades.

Eric BERS-195 reports that the YLs are taking a hand in things on 3.5 Mc. c.w. at 10 p.m. E.A.S.T., Monday nights. Heather VK2HD, Freda VK2SU, and Mavis VK3KS apply the feminine hand to the Morse key. (Nice work Girls, keep it up, but remember we read your mail!) This is not exactly DX, but our bands could stand more YL operators, for sure.

Ken VK3TL wants the times for working Europe S.R. on 7 Mc. Try leaving your nice warm bed around 1600 hrs. G.M.T., and from this time through to 2100 hrs. you should be able to pick up a few good ones. Good hunting!!

My bank teller gave me this one. One day a very, very young and newly-wed bride of a limited-licensed Ham came into the bank with a cheque; obviously the first she had handled. "Please endorse it," said the teller, turning it on its back. She stared at him with beauty and bewilderment. "Just sign it, there, as you would a letter," said the teller, trying to help. She wrote, "Lovingly yours, Margaret."

Once again very many thanks to all those who have supplied info. for DX news. They are VKs 3TL, 2QL, 9RO, 4DO, BERS-195, L2022, and others. 73, de VK4SS.

STOP PRESS.—Arch VK5XK advises that he is despatching QSL cards for Norfolk Island contacts. Any Ham who wants this VK9 QSL should send for one as soon as possible.

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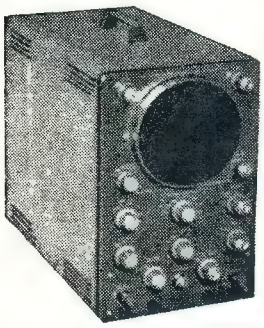

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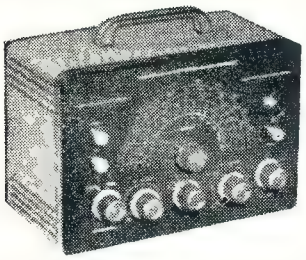

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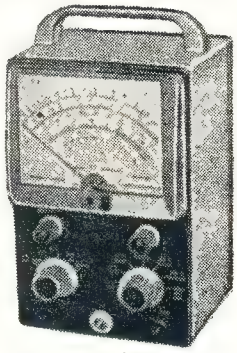

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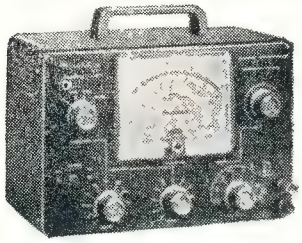

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Sub Editor: BUD POUNSETT, VK2AQJ,
6 Alice Street, Queanbeyan, N.S.W.
ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

S.S.B. AT 288 Mc.

While quite a large number of the Australian Amateurs have not yet transmitted an s.s.b. signal on such d.c. bands as 80 or 40 metres, Lance 3AHL is a long way ahead with equipment capable of producing sideband on 288 Mc. There are quite a few stations on 50 and 144 Mc., but Lance's is the only s.s.b. station on 288 Mc. in the Melbourne area, if not in the whole of the country.

Fig. 1 shows a block diagram of the 3AHL 288 Mc. system. The 50 Mc. sideband tx is used to drive the CV5116 mixer where a 238 Mc. signal from an impressive number of multipliers and amplifiers, hetrodynes the s.s.b. to 288 Mc. The 50 Mc. equipment is v.f.o. controlled resulting in the same rate of change in frequency at 288 Mc. In fact, the stability of the 288 Mc. signal is the same as that obtained in the 840 to 1840 Kc. Franklin v.f.o. used in the 50 Mc. gear.

You will also note that the 238 Mc. signal is used in the receiver converter to change the 288 Mc. signal to 50 Mc. for use in another converter and thence to a communications receiver.

Ron has been installing radio equipment for the airline for whom he toils. He took along his mobile equipment which performs so well on 20 metres from the streets of Melbourne and suburbs and has been kept busy handing out VK3AHJ/VK9 contacts with the aid of a simple dipole. At the time of writing, Ron had not yet appeared in Port Moresby so, for those who need Papua (and who doesn't?), keep your ears peeled for Ron on the high end. One amusing sidelight, was an American who asked Ron to rotate his antenna. "Jeeves, pull up that coconut palm and plant it again over there."

THE AUSTRALIAN S.S.B. REGISTER

Comps Daw, VK5EF, has gone to a lot of trouble to compile a very interesting booklet giving details of who is on s.s.b. in Australia. The book lists the call, name, location and equipment (receiver and transmitter) of the 230 or so sideband operators in this country. Maybe Comps has missed a few of us and some of his entries have blanks in them, so how about letting him know the details, very briefly, of your gear. Comps is very active on the bands, but if you miss working him, write the information on the back of a QSL and drop it in the mail. The address is: VK5EF, P.O. Box 44, Gawler, S.A.

will contain the mechanical details. The LWM-3 is an s.s.b. transceiver employing 23 tubes and a Collins 2.1 kc. mechanical filter or an alternative full lattice crystal filter may be substituted. All bands from 3.5 Mc. to 30 Mc. are covered in eleven 200 kc. segments.

The LWM-3 delivers 5 watts p.e.p., ample to drive a pair of 6146 tubes or similar linear amplifier. This transceiver looks very similar in appearance to the Collins KWM2 and the construction is not beyond the advanced Amateur with a reasonable workshop.

Address your inquiries to Editor "A.R.," who has the above bulletins. It may be possible to post it on a round robin.

WHO

Steve VK0VK made DXCC from Wilkes in 1961 using the same gear now used by VK0DS. VK1SB is back on 20 mx, much to the delight of the DX. Stan is the only VK1 on 20 and is much sort after for W.A.V.K.A. and W.P.X. I knew he would not be long on 40 mx only.

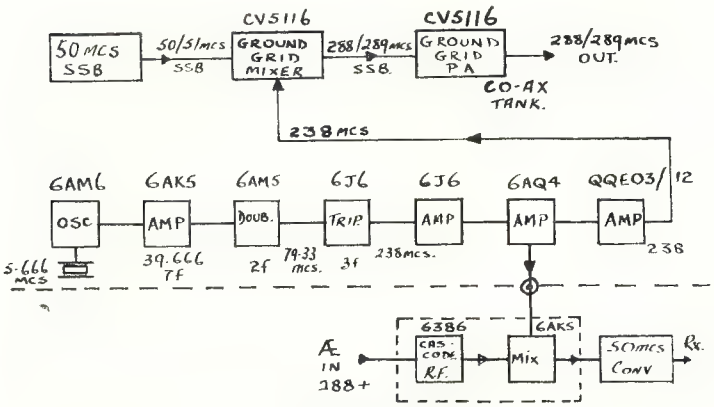

Fig. 1.—VK3AHL 288 Mc. S.s.b.

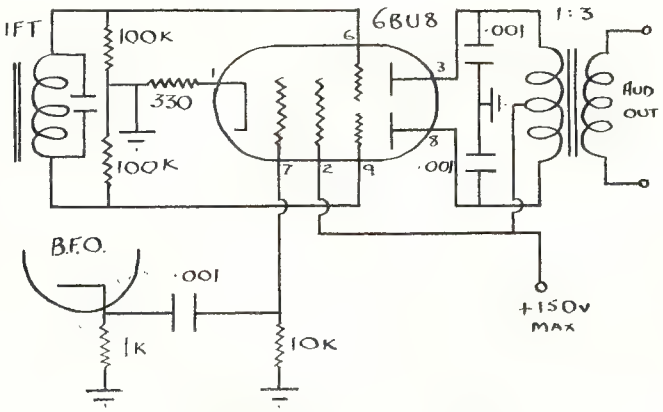

Fig. 2.—Simplified 6BU8 Product Detector.

Some of the tubes used may not be familiar. The converter cascode r.f. stage uses a 6386 which is similar to a 6BK7, and the CV5116 is equivalent to the S.T.C. 3B240M tube. As a full treatment of the circuit would entail a large amount of preparation, Lance will be glad to reply to any queries and to furnish details of any part of the circuitry in which you may be interested.

THE 6BU8 PRODUCT DETECTOR

Much cheaper than the excellent 7360 tube is the 6BU8 which makes a good product detector. Fig. 2 shows the simplified circuit of the 6BU8 product detector which appeared in "CQ" Aug. 1959. The method of coupling the oscillator output to the 6BU8 is my own. Using the 6BU8 tube in this role has three big advantages over the usual 12AU7/6BE6 product detectors. The i.f. input does not have to be attenuated, the b.f.o. injection is very small (2 to 3 volts) and the output is more than sufficient to drive the audio output tube without the need for an audio voltage amplifier.

You are probably wondering about the cathode follower output from the oscillator. I found that when taking the output from the grid or plate of the oscillator tube, the b.f.o. frequency varied with s.s.b. input to the 6BU8, thus giving rise to distorted audio output. Placing a 1,000 ohm ¼ watt resistor in the cathode circuit of the oscillator tube and coupling the b.f.o. signal with a 0.001 μF. capacitor to the 6BU8 control grid resulted in clean undistorted audio output. In my case, the oscillator circuit is that used in the BC453 receiver, the frequency is 85 Kc., and the tube is half of a 12AU7.

PORTABLE VK9

Well known Melbourne sidebander, Ron Harrison, has recently been moving around New Guinea, appearing in such places as Lae, Mt. Hagen, Madang, Wewak and Port Moresby.

VK0 1962

This year could be a lean year for VK0 contacts, although this will not be the fault of Don 3ZIE, who is signing VK0DS until next January. Don is an ionospheric physicist at Wilkes and when not going about his official duties, will be on 20 mx using the modified KWS1 and 75A4 combination that did such a sterling job for the chaps last year. A ground plane radiates the signal which often has that polar flutter on it. Here again single sideband shows to very great advantage. A.m. signals rapidly lose their intelligibility under these flutter conditions.

Another call you will hear from Wilkes is VK0CG, while from Mawson VK0BW is expected, although it is understood that s.s.b. equipment is not available at this base. At Macquarie Island there is believed to be some Amateur activity but again not on sideband; the call sign is not known at present either.

Contrary to what one or two overseas journals have stated, there is definitely no Amateur activity from Heard Island nor can any be expected as the island is uninhabited except for seals, sea elephants, penguins and the like.

At Wilkes just a hundred yards or so from VK0DS, the American personnel of the base operate KC4AAC on s.s.b., mostly in phone-patches to their families and friends in the United States. What a wonderful boost for the Australians in the Antarctic, if this facility was available to them.

THE LWM-3

The Nov.-Dec. 1961 issue of G.E. Ham News gives circuit details of a very fine piece of home-grown equipment. The Jan.-Feb. issue

As we anticipated last month, Col Harvey, ex-VK2AQU, is now on from Singapore, signing VS1AU, and is on or about 14,300 Kc. from 1000 to 1200 G.M.T., almost every evening. Col, who is a Wing Commander in the R.A.A.F., is on loan to Far East Air Force Headquarters, R.A.F., based at Changi and is expected to be there for two years or so.

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VHF

50 – 144 – 288 – 576 – 1296 Mc.

Sub Editor: BILL ROPER, VK3ARZ,
Lot 59, Orchard Street, Mount Waverley, Victoria
ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

A common cause of annoyance on both the six and two metre bands is the very broad, splattering signal, and what is hard to understand is that most Amateurs do not seem to care about it.

It appears to have become accepted practice to place about 200 per cent. modulation on the carrier to try and blast the intelligence (?) through the noise level of the DX station's rx.

Granted, it does help somewhat in this regard, but what about the other stations using the band? Are they expected to copy signals through your 100 to 200 kc. wide splatter?

Just remember what your thoughts are when somebody's spreading sidebands obliterate the station you are in contact with, and then check your own transmission to see if it is clean.

There is a number of excellent methods of increasing the "talk power" of your transmission, such as clipping and limiting, so that there is really no valid excuse for overmodulation.

Other causes of spreading signals, of course, include incorrect bias and drive to the final, incorrect neutralisation and parasitics.

Another thought that must be carefully taken into consideration in the matter of judging wide signals is the ability of your receiving set-up. Many receivers have poor selectivity and still others suffer from overload in various stages. (A classic example is the owner of a 522 rx telling a local that he was splattering.)

So before you start telling everybody that they are splattering, make absolutely certain that your rx (or your operation thereof) is not at fault.

Unfortunately, Roy 6RY has had to give away his post as scribe for Western Australia, but we welcome 6ZDR and 6ZDM (ex-3ZGA) to the page. Thanks very much for a job well done Roy, and all the best to you in the future. Bill, 3ARZ.

NEW SOUTH WALES

Thirty-seven members attended the March meeting and heard three lecturettes. The first by Neville 2ZNM on his "Micro-mitter," a transistorised 144 Mc. tx/rx. It consisted of a xtal controlled tx and a regenerative rx. Transistors used in the r.f. sections were OC171s which are readily available at a price comparable with tubes. Power input is 50 milliwatts. The circuit, parts list, etc., have been sent to "A.R." The second lecture was by Tim 2ZTM on the "Mini-mitter," a miniature tx using tubes which can be made for either 50 or 144 Mc. These tx's have been built by the dozen and acquit themselves very well. The third speaker was Barry 2ZAH, who spoke of techniques and ideas at 1296 Mc., and suitable tube types for the proposed band on 432 Mc. It is anticipated that 432 Mc. will be more popular than 576 Mc.

The night hidden tx was hidden at Burraneer Bay, near Cronulla. Paul 2ZPJ was first, followed by 2ZCK and 2ZKP.

Midsummer Field Day. Over 40 stations participated in this event, but only 10 logs were received—7 portable and 3 home stations. Winner of field stations was 2AWZ, followed by 2ZKP and 2ZPJ. Home station winner was 2RX, followed by 2ZLB and 2AVN. Logs were mostly well set out and mileages fairly accurate. It would assist in future events if participants gave their grid reference on the appropriate 4-mile and 1-mile army survey maps. These being the maps used for log checking.

144 Mc.—This band is very quiet but some are reported experimenting with transistors and portable equipment. Les 2ZBT has a transistor rx using 14 transistors, but no details yet. Also some activity on s.s.b. by 2RX and 2AAB.

1296 Mc.—On Sunday, 4th March, Dick 2ZCF took his 1296 Mc. rx to Glenbrook on the lower Blue Mountains and worked Bill 2ZAC at Croydon. Signals were 5 and 7 over the 30-mile path. Contact was one way, the return being on 144 Mc. Bill's tx ran 20w. input to a 2C39 tripler and fed a 32 element phased array. Dick's rx has a xtal mixer in a trough line and is xtal locked. Ant. is 16 element phased array.—2ZDP.

QUEENSLAND

DX on 6 mx is gradually slowing down now. On 6th Feb. the t.v. station from ZL was heard but no stations were worked. On 9th, VK3 and VK5 stations were worked. A really good opening occurred on the following day when VK2-3-5-7-8 were heard. Then was a lull in DX until 14th when VK3 and VK7 were worked. 15th, Korean f.m. station heard, but no JAs. 17th, VK5 was worked. 19th, VK3 and VK5 worked and ZL t.v. station heard.

On 21st and 22nd magnetic storms occurred which resulted in an excellent opening to JA on 24th and another opening which was not quite as good on 25th. 21st, Korean f.m. station heard. 26th and 27th, Russian t.v. station heard. 28th, VK3-5-7 were worked and on 5th March, JAs were again worked.

On 21st, 4ZAX was working mobile and portable 6 mx from Byron Bay in VK2 and he had no trouble in working Brisbane stations. The signal he put into Brisbane was fantastic. Other notable accomplishments of the month were when 4ZBZ, portable at Lismore in VK2, worked Brisbane on 2 mx. As the result of Ron 4ZBZ stirring local activity in Lismore, 2ZFS worked 4ZAX on 2 mx also.

On 16th Feb., the V.h.f. Group meeting was held at the home of the scribe, 4ZBT. The following evening a 6 mx mobile night was held and a good time was had by all.

On 2nd March, 4ZAX and 4ZBF secreted the 2 mx hidden tx near the remote corner of a local aerodrome. Finding it proved so difficult that it would have been far more convenient to hire a helicopter than to drive vast distances where no roads existed.

Royce 4ZRH announced his engagement to Alwyn. And George 4ZGD announced his engagement to Dell. Congratulations you lucky people.

4ZDJ has recently returned from a trip to Sydney where he spent much money—some on Amateur gear. Brand new call sign is 4RX, who was 4ZAP. Congrats., Brian. Rare calls recently heard on 6 mx include Alf 4OL, who is normally heard on 40 mx, and Bill 4BN, who usually switches on once a year.—4ZBT.

SOUTH AUSTRALIA

50 Mc.—This band has been quite good over Feb., with sporadic E DX holding up quite well towards the end of the month. Good openings occurred on 10th, 11th, 19th and 28th of Feb. No band openings to VK8, VK9, VK6 or ZL were recorded, although other States were well represented. The ZL t.v. sound was heard on 21st and 22nd Feb. by 5ZMK; no ZL contacts however.

Quite a deal of thought has been devoted here in VK5 recently to the construction of a 50 Mc. beacon station. Most operators are in favour of a beacon and the problems will be considered at a V.h.f. Group meeting to be held soon. The views of other States, particularly as regards the operating frequency, would be appreciated.

Rodney 5ZCD of Bordertown is on both 50.12 and 144.5 Mc. running 20-30w. on each band. He looks for contacts on Sunday nights at 2030 hrs. E.A.S.T. Recent 2 mx contacts for Rodney include 5ZDR, 5BC, 5ZMK, 3NN. Thanks for the news Rod, and please keep it up (send to 5ZCR). Brian 5ZBR in Gawler is now running 100w. on 50 Mc. to a pair of 807s. Brian is about 25 miles north of Adelaide, and now puts in a good signal on 6 mx.

Two metres has been quite reasonable recently. Keith 5ZMK has his 2 mx yagi up to 50 ft. now and joins 5ZDR for the nightly sked with 3NN. Keith reports a big increase in the strength of 2 mx signals since he has put the beam higher. Keith has recently worked Tony 5ZAI (144.3 Mc.) in Bordertown. (Tony is 10 miles from 5ZCD, on 144.5 Mc.).

Gary 5ZK has got a 6CW4 going in his 2 mx front-end, and reports a big improvement over his triode connected 6AK5.

288 Mc.—The only news of interest on 288 Mc. is that John 5ZDZ is now running 80w. to a 6/40. John's tx is xtal controlled.

General News.—At the last meeting of the V.h.f. Group the election of officers was held. President for the coming year (1962) is Gary 5ZK, Vice-President Mick 5ZDR, and Councillors 5ZAW, 5ZCR and 5BQ (also Sec.).

David 5AW is now living in Elizabeth (10 miles north of Adelaide) and hopes to have his gear set up soon. Joe 5ZCP is moving to Whyalla, we hope he will get going from up there. Barry 5BQ has moved to Coronation Ave., Marden, and will soon have gear on air.

Wally 5DF in Trow Knob is showing an interest in v.h.f. Let's hope something eventuates. Jack 5ZSS had a bumper barbecue evening at his home recently. Most of the v.h.f. gang attended and an excellent time was had by all.—Al, 5ZCR.

WESTERN AUSTRALIA

Roy 6RY, who has been doing a sterling job as publicity officer, has been forced to withdraw from the position because of personal commitments. We all extend our warmest thanks to him for his untiring efforts in this position.

The National Field Day proved to be a complete success in VK6 due largely to the friendly co-operation of a great many of the local Amateurs. Special thanks are hereby extended to 6ZCB, 6RU and 6BU for their willing loan of necessary gear. To top off an extremely successful day, segments of the event were televised by a local t.v. station. This contributed greatly towards the cause of publicising the Amateurs of VK6.

Mac 6MM has been worked on s.s.b. on six and with his balanced mod. rig. has a very clean signal. Others are also experimenting with s.s.b. and Kevin 6ZCB is almost on the breeze with it.

The last fox hunt was won in a photo finish by 6ZBT from 6ZCE. The tx was hidden, perhaps a little too skilfully, by 6ZAA.

Much to the disappointment of some of the newcomers to the 6 mx band, no DX break of any magnitude occurred during Feb. Several of these newcomers were reported to be gazing hopefully in the direction of Japan with that certain DX look in their eyes.

As a break to Japan seems unlikely, the VK6s would be well advised to turn their beams towards Derby on Saturday between 1 and 2 p.m. 6ZBP in Derby is trying hard to obtain contacts on 6 mx and will be calling CQ between above specified times.

As the authors of these notes are compiling them for the first time, comments, good or bad, would be appreciated. Any such comments or recommendations may be personally passed on to the authors at the next V.h.f. Group meeting at D.C.A. Regional Workshops in Guildford Road.—73, 6ZDR-6ZDM.

NORTHERN TERRITORY

Not much to report this month. One opening on 50 Mc. on 11th Feb. during the N.F.D. I heard the following: 3ZCW, 3QV and 3ZCZ and worked 3ZIC, 3WK and 3UT, the latter two in Warrnambool.

I will probably have 150w. to a QB3/300 soon and am also contemplating a 32 el. phased array strung between a couple of trees.

On 4th March, between 2215 and 2230 hrs., heard some JAs on T.E. and also HLKA and other stations. Same thing around 2315 hrs. on 5th March. So far no JAs worked.

The chap in Darwin has received word that he has to sit for the exam. again in April, but he is getting his gear all ready to go.

I spend most evenings on 20 mx and can be found around 14220 kc. about 2000 hrs. E.A.S.T. —David, 8AU.

PAPUA

Six mx DX this month has been most noticeable by its absence. Only two DX openings were observed, 5th Feb. 9CK and 9NW worked into VK4 Rockhampton, 1200-1300 hrs., then on 25th Feb. 9AU worked 4NG at Rocky at 1925 hrs., also heard other VK4s including 4PU, 4ZBK and 4ZBZ between 1900 and 2100 hrs., but could not break through to them.

Brisbane, Channel 2, t.v. audio signals heard on 5th Feb., 1100-1300 hrs., and 1900 hrs. on 25th. 49 Mc. T.E. signals from N.N.E. heard at S9 plus on 5th Feb., 2015-2230 hrs., also on 1st March S8 from 1900-2100 hrs.

No other DX was in evidence during the month. 9AU has the beam on Cairns at 1900 hrs. most evenings, but has not heard anything around 50.7 Mc. as yet.

Gordon 9NW has recently swapped his 4-wheel Ham shack for another of the same type and is off the air for the present. Paul 9ZBV has been heard testing a new ground plane on 50 Mc. 9AU has a new 144 Mc. converter using pair 6CW4s in cascode into 12AT7 mixer/cathode follower, xtal osc. chain is 6AK5/12AT7. So far best DX is 9ZBV, approx. ½ mile away and low power commercial circuit 10 miles away on 156 Mc.—9AU.

S W L

OH0, KL7, ZD8, ON4, LZ, FF8, VP8, XW8, 5H3, W0

Sub Editor: ROBERT YOUNG, WIA-L3076,
14 Alverna Grove, Brighton, Victoria
ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

VICTORIA

Last general meeting of the Group, 14 members were present. It was suggested by members to make a recording of the S.w.l. Section of the b.c. from Warrnambool on week-end of the Convention, the recording was made on Saturday night. It was transmitted on 80 mx from 3FX to 3OM and re-broadcast from 3WI/Portable on Sunday morning.

At construction nights, it was suggested by Maurie Cox to construct simple radio gear such as single-tube converters to feed into b.c. sets. The younger members can afford to build this gear, and will also get them interested in the listening side of radio.

Ian L3065 has arrived back in Melbourne from VK1 and has his nose back to the grindstone once again. He has managed to find some time for a little DX hunting and has improved his DX total a small amount, but has heard no new countries.

Noel L3101 has not had the opportunity to do a great deal of listening this month. 20 mx has been fair to W land in early morning via the long path, and has been much better from 19th Feb. The 40 and 80 mx bands have not been the best. At present Noel is building a W8JK antenna and with a bit of luck it should be in operation by Easter time. The next job is to move the rx up into the spare bedroom for the winter months and settle down to some solid listening to boost his score.

Maurie L3055 is still listening to rare DX on 20 and 15 mx and is still waiting for an opening on 10 mx (wish you luck, OM). He has wired up a speaker and headphone network so as either the H.R.O. or the BC348 can work into the one speaker. He is thinking seriously of disposing of the vee beams and erecting two 20 mx Windoms. Also he thinks he may put up a ground plane antenna for 10 mx. Cards received: DU7SU, G3NVA, LA5ID, XE1CV/XF4, VK9GP.

Ken L3117 has not been able to attend the meetings because of the transport problem. He was hoping to attend the Convention, but his parents disapproved. The rx line-up at Ken's QTH is a Philips No. 4 with an extra audio stage and several other modifications. The antenna consists of two folded dipoles, one for 7 Mc. and the other for 14 Mc. The shack is made of corrugated iron sheeting and is about 8 ft. square by 7 ft. high. Ken reports that 80 mx is opening up for DX now that winter is coming on.

TASMANIA

Activities are very quiet according to Neville 7ZEE/L7013, who has been away for two weeks, therefore very little DX was heard. He is active on 2 mx also. David 7ZAY has been practising c.w. and will sit for his full licence soon. He has been hearing some good signals on 40 mx with his new 9R/S9 receiver.

Ted 7EB has recently purchased a BC454 which is working really well. He is planning some modifications to it so as he can hear the rare DX.

Greg Johnston has been away most of the last month and has not been very active.

RADIO MAIL

The mail this month is from the following listeners: Peter Drew, Chas Aberneathy, Eric Trebilcock, Peter Fields, and Don Grantley.

Peter L6021 has found 20 mx very good every night from Asia and Europe and good in the mornings to U.S.A. During the month Peter heard his first ZS and VU on 40 mx phone, also Europeans were heard at 1600 G.M.T. on 40 mx as well as two ZS stations. One new country confirmed by Peter was XE1HHT. Cards received by Peter during the month: ZL1IB, VK5DC (7 Mc. s.s.b. mobile), W6RO, XE1HHT.

Chas. L2211 reports that conditions for the Ross Hull Contest were perfect for most of the four weeks. In fact he has not listened on h.f. since Nov. 1961. He has sent out 38 reports and to date received 12 confirmations, which include three ZLs. Chas. has received the four ZL districts and now has the four confirmed. He is wondering if he is the first s.w.l. to have four ZL districts confirmed on 50 Mc. Chas. missed out on the elusive VK8 and VK9, and would have liked to have collected them. Also heard enough VK5s to qualify for the Elizabeth Award and is now waiting on confirmation while all the logging is taking place on v.h.f. Quite a few s.w.l. are climbing up the DX ladder, but Chas. has no intention of leaving 50 Mc. for quite a while yet.

Eric Trebilcock's best QSLs from Feb. to March: BV1USE, JZ0BM, OH3WM (3.5 Mc.), UA0MO, UR2DZ, HL9KT, KX6AJ, UP2KNP, and VQ3HZ. Eric is very interested to know from which source did Bill John (Feb. "A.R.") receive a QSL card from ZL5AI. He has had no luck as yet with this one.

Peter L5039 sends his DX QSL cards received this month. They are from JA1ENI, UR2BU, UA0LBQ, WA6JIM/MM, K4TRV, F8BO, VR1F, CT1YE, DL1IN, KC6TM, ZS6AWO, DL9LZ, WA6MQL, W2ZX, BV1USC, LA4VQ, 9M2FK, ZE7JR, JA2KX, JA3IW, 5A4AF, also a few VKs. Peter was over in VK3 in January. He visited Geelong, Bendigo, Swan Hill, Mildura and other places for a few days. He has just installed a 14 Mc. dipole and a one mx beam. A 6 mx beam has been up since Xmas.

Don L3088 has now reached the century in countries confirmed—a card from KH6EDY/Kure made the above possible. The following day GC2FMV came good with a card to start the second century. 83 countries have been heard in 33 zones in 1962 to date. Plenty of Ws have been heard on 80 mx c.w. mid evening, mainly being worked by 2QL. 7 Mc. c.w. is well and truly active for DX, but most pleasing is the DX coming through on 15 mx at 9 p.m. on 22/2/62. 20 mx was also very good at the same time. Don logged VP2SY for a new country. His QTH is P.O. Box 80, St. Vincent, West Indies.

Well chaps, that's all for this month, and will be looking for more news from you next month. 73, and best of DX—Robert, L3076.

S.W.L. DX LADDER FOR APRIL

	Countries Conf.	Countries Hrd.	Zns. Conf.	S.s.b. Conf.	S.s.b. Hrd.	W Stat.
E. Trebilcock	274	280	40	—	—	5
D. Grantley	101	245	37	14	81	34
A. Wescott	80	158	31	33	92	—
M. Hilliard	67	208	33	5	100	11
M. Cox	41	210	22	8	118	14
C. Aberneathy	30	57	21	—	—	13
P. Drew	29	172	18	7	75	4
P. Fields	26	133	—	—	—	—
N. Harrison	26	48	20	—	—	23
I. Thomas	17	131	16	6	70	8
D. Jenkins	10	141	7	—	—	—
H. Burger	6	185	5	1	19	—
N. Fisher	3	36	3	—	—	—

Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

"INCREASED AUDIO WITHOUT SPLATTER"

Editor "A.R.," Dear Sir,

The article "Increased Audio Without Splatter" in the March issue of "Amateur Radio" has left me (amongst, I should hope, a considerable number of others) dismayed and shocked.

Dismayed, Sir, that your Technical Committee should have accepted such an article for publication—although it was probably no more fallacious than the article on the effects of a high s.w.r. in August 1961 "Amateur Radio" . . .

My issue of "Amateur Radio" arrived only yesterday and this letter needs to be posted tomorrow to reach you in time for publication in the next issue. Obviously, then, I cannot produce a complete technical article in time. However, I consider it important to state, before anyone has time to try the circuit published that—

(a) It is incorrect to say that "The addition of the extra load proposed in B during the negative voltage excursion, if of proper value, results in nearly perfect symmetry loading of the Class B transformer secondary during the negative as well as the positive voltage excursions."

(b) The article infers that the modulator looks into a load widely varying over the audio cycle. Such is not the case in any reasonable transmitter. It also infers that distortion and splatter result from this. This is incorrect.

(c) The result of connecting the extra diode and resistor suggested across the secondary of the modulation will result in much increased distortion, a broad signal, overloading of the modulator tube and the modulation transformer, and, more importantly, will not prevent splatter.

—L. Vale, VK5NO.

GENTLEMEN'S AGREEMENT

Editor "A.R.," Dear Sir,

The recent barrage of replies to my earlier letter pointing out the dictatorial attitude of F.E. in fostering this so called Gentlemen's Agreement warrants space for reply which you, Mr. Editor, being a true democrat will (I hope) let me have instead of curbing a controversial discussion with the blunt "correspondence is closed".

Some of the letters such as the satirical note from Jeff Vale, VK5NQ, who wants a statue of Samuel Morse erected outside my home, are ignored for the simple reason he endeavours to ridicule sincerity which is never fostered in a British society.

Frank Hine's outburst has my complete support for I think it wrong that a healthy correspondence is curbed without any justifiable reason. I have spent many years in journalism and worked with editors in many countries and rarely has any subject being discussed in the correspondence columns been stopped by The Editor; on the contrary it is encouraged. I hope this time the correspondence will be allowed to flow in the hope that right will prevail.

Now to get back to your correspondents to date. Les Brennan, VK4XJ, claims the Gentlemen's Agreement is recognised throughout the world. This is quite wrong. In America it is by regulation. The plea by the A.R.R.L. recently to get W stations off the top 15 Kc. of 14 Mc. has been a complete flop. In Europe the top 50 or 100 is a mad house but at least there's plenty of activity. I've just returned from a world tour and spent some time with my dear friends in the Arab world and they just operate where they wish with most satisfactory results. At least their bands are busy—in sharp contrast to the Australian scene. Les' point that c.w. is international is really too silly for reply. Listen to any of these average DX contacts. Apart from swapping RST numbers and the plea for QSL, it is all over bar the shouting. It is the most impersonal means of communication I know.

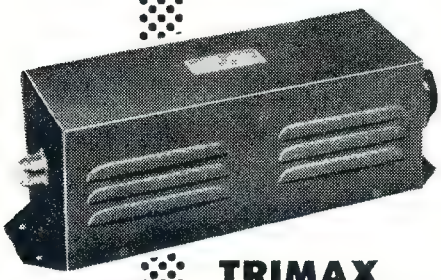
"Tubby" Vale, too, says these market surveys are to suit the boss. Here I can speak with quite a good deal of authority as an executive in perhaps the most competitive industry in the world today. We rely on market surveys completely and without them we would all be out of business, especially when such huge capital investment is at stake. To say these figures of mine were to suit me is equivalent to saying I'm a Gentleman without Honour. They were taken independently by a very well qualified researcher with degrees in economics from three countries behind him.

It is quite obvious from what has already been published and what I hope will be published in the future that there is a genuine desire for a vote on the subject whether the c.w. territory should be curbed. One only has to listen any day or night and note the complete absence of activity on the c.w. end. Those who are so prolific in their replies to me are the minority who are on c.w. quite regularly but here it stops. It is this minority so outspoken in their defence that rise to put the claim of the c.w. world. Let us hear from more, who, I hope, are balanced like myself and willing to let justice and democracy prevail.

Like the Swiss, only facts convince me.

—Roth Jones, VK3BG.

VOLTAGE REGULATION!



...with the TRIMAX

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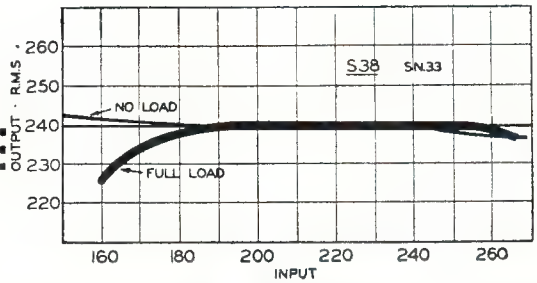

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FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

★ ★

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL

NEW CALL SIGNS (OCTOBER)

VK— **Australian Capital Territory**

1RS—R. D. Stephenson, 3 Carnegie Cres., Narrabundah.

New South Wales

2IT—P. H. Long, R.A.A.F., Richmond.
2ASD—T. A. Dineen, 52 Glaisher Pde., Cronulla.
2ZEH—D. G. Hosking, No. 86 (T) Wing, R.A.A.F., Richmond.
2ZLC—L. M. Carlton, 33 Edgar St., Auburn.
2ZRH—R. A. Hord, 106 Stapleton St., Wentworthville.
2ZRM—R. B. Mayall, 41 Crown St., Fairfield.
2ZSM—M. C. Smith, 5 Perth Ave., Lindfield.
2ZWG—G. D. Wilson, 36 Virtue St., Condell Park.

Victoria

3RA—B. W. Poulter, Lot 21 Astley St., Montmorency.
3WK—W. J. Bell, Staywood Park, Wangoom.
3ACI—R. K. Hobby, 50 Adeney St., Kew.
3AIU—I. R. Upton, 34 Delacy St., Maidstone.
3ASY—O. W. Guy, 22 Williams Rd., Shepparton.
3AWY—L. T. White, Downey St., Alexandra.
3AYE—G. M. Nicholls, 14 Somerset Rd., Glen Iris.
3ZIO—B. L. Hearn, 6 McBain St., Altona.
3ZLL—K. R. Halse, 18 White St., Glen Iris.
3ZME—R. J. A. Little, 10 Albert Rd., South Melbourne.
3ZMQ—G. V. Comber, 11 Peace St., Highett.
3ZND—N. G. Daniel, 19 Williams Rd., Laverton.

Queensland

4EZ—R. D. Sivyer, 26 Jack St., Kedron.
4JM—J. McGrath, Elliott St., Elliott Heads.
4OS—Oakleigh Boy Scouts Radio Club, Station: High St., Dorrington; Postal: 15 Noeline St., Dorrington.
4RO—R. V. Ramm, Station: Canberra St., Ayr; Postal: P.O. Box 695, Ayr.
4ZDH—D. R. Hamm, 37 Ironside St., St. Lucia.
4ZEF—Evelyn F. Bahr, Station: 177 Bowen Rd., Townsville; Postal: 187 Bowen Rd., Townsville.
4ZKR—K. L. Ross, 5 Thirteenth Ave., Kedron.
4ZRR—R. R. Robinson, 22 Hughes St., Hermit Park, Townsville.
4ZWL—W. H. Lake, Station: Prior St., Machans Beach, via Cairns; Postal: P.O. Box 1152, Cairns.

South Australia

5RC—J. Reilly, Station: 95 Lefevre Tce., North Adelaide; Postal: C/o. E.M.I. Electronics P/L., Box 176, P.O., Salisbury.
5ZAH—V. N. Blackmore, 2 Yaralin St., Klemzig.
5ZEC—A. B. Cleave, Commercial Rd., Strathalbyn.
5ZGK—K. L. Gore, 20 Hawkins Ave., Flinder Park.
5ZHB—A. G. Halley, 16 Dunstan Ave., Kensington Park.
5ZJB—J. R. Beaumont, 28 Ranelagh St., Glengowrie.
5ZJW—A. J. Whittall, 38 Simpson Ave., Dudley Park.
5ZMS—C. D. Packham, 7 Pembroke St., Kensington Park.

Western Australia

6DC—W. A. Wilson, 25 Ougden Way, Medina.

Tasmania

7BS—13th Hobart Group Boy Scouts Radio Club, 4 Strickland Ave., South Hobart.
7JF—J. E. Forster, 12 Denison Ave., Poatina.

Territories

9LA—L. C. Allen, C/o. D.C.A., Cocos Island.

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FEDERAL QSL BUREAU

A change in the A.R.R.L. QSL Bureau set-up is: VE8—Mr. Russ Allen, VE8BC, Aeradio Station, S.N.A.G., Yukon Territory, Canada.

WPE2AK, Leroy Waite, 39 Hannum St., Ballston Spa., N.Y., U.S.A., advises that he handles cards for all W, K, VE s.w.l's. He has performed this service since 1957.

The Burma Amateur Radio Society has been changed to the Burma Amateur Radio Transmitting Society. The President is XZ2ST and the Secretary XZ2SY with address as Box 800, Rangoon, Burma.

Cards handled by the Federal Bureau for the W.I.A., year ending Feb. '62, totalled 44,538—the highest since 1958.

The P.Z.K. (Polish Section of I.A.R.U.) is holding a Contest to celebrate the thousandth anniversary of the Polish State. Contest dates are: c.w. 2000z April 7 to 2000z April 8; phone 2000z April 14 to 2000z April 15. Bands 3.5 to 28 Mc. Rules, etc., from this Bureau.

The above body is also sponsoring an Award called "Millenium S.P. Award." SP contacts made between Jan. 1, 1962, and Dec. 31, 1966, are eligible. Non European Amateurs need 20 contacts with SP stations located in at least five SP call areas. A list of QSLs held covering above contacts and certified by Australian Awards Manager, together with five I.R.C. should be sent to Awards Manager P.Z.K., Box 320, Warsaw 10, Poland.

—Ray Jones, VK3RJ, Manager.

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FEDERAL AWARDS

During February 1962 V.h.f. Awards were made as follows:

V.H.F.C.C.

No. 14—Barry Cleworth, VK5BQ (ex-VK5ZBZ), 50 Mc., 165.
No. 15—David Rankin, VK3QV (ex-VK3ZAQ), 50 Mc., 105.
No. 16—Max Lindsay, VK4HD, 50 Mc., 104.
No. 9—Bill Rushby, VK2ABR, 50 Mc. total 166.

W.A.S. 50 Mc.

No. 30—Quentin Porter, VK3IM, plus JA, VR2, ZL and Papua.
No. 31—John Barker, VK5ZZ/T (ex-VK5ZCJ), plus JA, ZL.
No. 32—Roy Taylor, VK9AU (ex-VK2TR), plus JA, KH6, and Papua.

—Alf Kissick, VK3KB, Manager.

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NEW SOUTH WALES

GENERAL MEETING

The Feb. meeting of the N.S.W. Division was held at Science House, Gloucester St., Sydney, on Friday, 23rd Feb., with an attendance of about 40 members. The President, Bill 2YB, opened the meeting at 8.20 p.m. and welcomed the visitors, John 4DD and Ted Mulholland. Apologies were received from 2ZNM, 2ST and Alan Chato. New members admitted to the Division totalled seven full members and 14 associate members.

Reference was made in correspondence to the Sefton Boys' High School Radio Club which is progressing with an initial membership of 12 boys.

The lecturer for the evening was Barry 2ZAG, President of the V.h.f. Group of the N.S.W. Division, who spoke on the "Future of Amateur Radio". Tracing the history of Radio from the time of Hertz and Marconi, whose initial experiments were conducted on the very high frequencies, Barry pointed out the many phases of v.h.f. techniques, its expansion over the years, and its appeal to the more youthful enthusiasts. The vote of thanks to the lecturer was moved by Bob 2AWA.

The time remaining was taken up with the discussion of agenda items which will be discussed at the Federal Convention to be held at Perth at Easter. The meeting closed at 10.50 p.m.

HUNTER BRANCH

Following close upon the Dural Convention, the Gosford Field Day attracted quite a number of zone members. The double postponement apparently resulted in a greater interest and all to whom I spoke were loud in their praise of the Gosford boys in selecting such a perfect spot for the annual get-together. It seems that this may become the regular venue and if so, should result in an even greater roll up than this year's record. Two of the local 144 men were successful in the second fox hunt, those clever types being Bill 2XT who came in first and President Stuart 2AYF who was 2nd.

Surely the greatest news for the month, other than the Field Day, is the opening of the new television station on the hills beyond Roseville. Shannon, our mutual friend, has at last found a use for his thirty bob t.v. set and now finds that two well soaked pieces of string, secured to the antenna terminals with 300 ohm ribbon, suffices to give him a strong signal with which not even his well loved Geloso will interfere. Now that a good signal can be obtained in most of the zone, the problems of many members will be partially solved, especially those in very difficult areas. At least two Harrys are particularly jubilant about all this. In G land the authorities were persuaded to allow the R.S.G.B. to use the f.m. mast in Kent for a v.h.f. beacon on the 2 mx band. I wonder what reception NBN would give the Institute? Apparently the service area of the new tx is quite extensive.

National Field Day activity in the zone was slight, that is on 40 and 80 mx and at one stage all that could be heard was the ring of an axe in the hills behind Teralba as a most scientific wire was changed from one tree to another. Yes, it rained about 100 points during the process.

Jim 2AHT from Toronto has now a beam for 40 mx directed to the land of kilowatts and is having a great deal of success with it. During the A.R.R.L. DX Contest he was, as reported, top scorer for VK.

Returning to the Field Day, Ron 2ASJ was on 40 for a time and in good voice, too, as well as Charlie. It was a delight to hear these chaps coming through so well. It is to be hoped the t.v. problem is partly solved for you both. Of course the regular customers were there including Bob and Bill. I suppose you heard that shocking display last Sunday when the failure to switch on the final was blamed on a burnt out fuse? Another most unlikely story.

Chris 2PZ treated the branch to an excellent lecture on gear in the shack at the Jan. meeting, illustrating his discourse with a great deal of fine equipment and some well chosen colored slides. In addition, Peter 2AIY showed slides of the I.R.E. visit to the Parkes Radio Telescope, concluding one of the most informative meetings for some time. A total of nineteen members, nine associates and five visitors were present including five of the Superior Radio staff to carry the gear! Come again soon Chris.

By the time this appears the new officers for 1962 will have been chosen and if you missed

W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK5AB	45	266	VK6KW	4	206
VK6RU	2	258	VK3ATN	26	204
VK6MK	43	252	VK4HR	12	192
VK3AHO	51	236	VK4RW	23	184
VK4FJ	21	229	VK3BZ	3	176
VK3WL	14	211	VK4WF	16	173

New Member:

VK4RQ .. 57 110

C.W.

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK3KB	10	300	VK4HR	8	218
VK3CX	26	288	VK6RU	18	218
VK4FJ	29	268	VK3XU	48	213
VK3NC	19	255	VK7LZ	17	212
VK3FH	15	226	VK3YL	39	211
VK3BZ	6	222	VK9XK	41	204

Amendments:

VK5RX	23	203	VK3ARX	66	174
VK3RJ	42	175	VK3JF	70	125

OPEN

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK2ACX	6	299	VK3HG	3	241
VK6RU	8	274	VK3AHO	76	238
VK4FJ	32	274	VK4HR	7	233
VK3NC	77	260	VK3BZ	4	231
VK6MK	74	256	VK3JA	43	229
VK2AGH	83	245	VK3WL	45	225

Amendments:

VK4WF	40	177	VK2APK	82	158

the meeting, it's your own fault, but don't miss the next meeting whatever else you do. It happens to be on Lucky Friday, 13th, and as well is a "Do It Yourself" night. No doubt some interesting and perhaps even hilarious demonstrations will be on view so remember 8 p.m. at the University College, Tighes Hill. And Bill 2XT still welcomes visitors on the third Wednesday of each month at his hostelry. April 18 that is, so see you there. 73, 2AKX.

BLUE MOUNTAINS SECTION

The Feb. meeting, held as usual at Lawson, was once more well attended with 17 members present. Several business items provided plenty of discussion. There being no lecture, the meeting closed for supper and the usual rag chew. Some films have been made available to the Club so it was put forward that net meeting be a film evening, the only hitch being a projector which according to my spies has been organised.

Gossip for this month is shorter than ever. Club band activity seems poor. Where is everybody on 6 mx? Six has been good, they say. I hear that Bob Pinning has received his ticket from the last exam. Congrats. Bob, hope we hear a lot of you. Whilst on exams., Noel Walker has not received any word as yet, but is still going ahead with his building programme. Jack Ferris is geared up again if he can find a tutor? Had words with Al 2ZFB on 6 mx and I understand he can only go on one band due to power supplies. Wal 2MZ has been carrying out some more checks on 1296 Mc.

Don 2ART and yours truly journeyed to 2WI the other day to help with the broadcast. The broadcast went OK, but the car gave plenty of trouble. After extensive repairs, we were able to return on four cylinders instead of three. My spies tell me that Sid 2AVK has been on the bands with his small rig with good results. Jack 2ADF is now busy getting a 3BZ tx on the air in place of the Geloso as a standby. Lorry 2ZJC is having antenna trouble and is using a vertical as a temporary one. 73, 2ADA.

CENTRAL COAST ZONE

Major 2RU was re-elected President at the Feb. meeting of the Gosford Radio Club. Lindsay 2ON is Vice-President, Reg 2AI continues in office as Secretary, and Ernie 2EH is now Public Relations Officer. Does any other Club have a P.R.O.?

The 5th Annual Field Day at the new venue, Gosford Racecourse, was more than well attended, about 111 Hams checking in. The luncheon was prepared and served by the XYLs of 2RU, 2AI, 2ALA, 2RF, 2MV, 2AVJ and 2YA. Bob 2IN and Perce Day officiated at the registration desk. The spacious setting with trim green lawns and shady trees for parking meant much to the success of the day. Twenty-two cars set off in the 144 Mc. hunts. The morning search led to Somersby, eight miles up in the mountains, and I understand the winner arrived on the scene at 50 m.p.h.! He was Dave 2AWZ. The afternoon hide-out was at Terrigal on top of a small hill and, because of the reflections from a hilly terrain, only four cars finished. This was won by Bill 2XT.

A scenic trip to Ettalong by launch from 2 to 4 p.m. was greatly enjoyed by the XYLs and harmonics.

The 7 Mc. scramble was won by Jim 2PM with 20 contacts in 30 minutes. The lucky dip was well patronised and a supply of Gosford oranges was popular with the children. A small amount of disposals gear was handled during the day. Johnny 2GA and Geoff 2MV helped the visitors to liquid refreshments below the main grandstand.

The programme concluded at 5 p.m. with presentation of prizes. Apologies are tendered to those who were inconvenienced by the double postponement, but there is no doubt the weather on 26th Feb. was ideal for a field day.

Alec 2AAK has left for parts unknown, taking no mobile gear. Len 2AMU will be asked for a lecture soon on "Dams I have seen" with coloured slides of Warragamba and others. Congrats. are in order for Ken 2AFH on the safe arrival of daughter number five. Now things are more settled the 144 meg. project will get more attention. Frank 2AFJ has his 2 mx converter working and the tx is not far behind. Ernie 2EH now appears on the 3.65 meg. Central Coast net every Monday at 2030 hrs. Stewart 2AYF had a close contact QSO with 2RU on 144 while racing through Gosford the other day at 8 a.m. Geoff 2AII is heard on 80 at times when not appearing on the stage or selling a certain brand of tractor.

Your scribe, 2ON, finds DX much easier to work with the quad. Although giving a variable gain of 0 to 2 S points over a dipole, it really sparkles on the rx. Line-hash is almost absent on the quad and the effect is about 6 S points of improvement in signal-to-noise ratio.

BOORAGUL HIGH SCHOOL RADIO CLUB

Time table alterations have given us a slow start this year, but already the numbers are up to 20. Thanks to the Slow Morse boys, the night sessions are now being taped and replayed at lunch time so as to give more time for theory and practice in the afternoons.

The long awaited higher power tx now looks to be almost ready and should be on in April. Those who are waiting on QSLs should have them by now and if anyone has been missed, a call at 0600 G.M.T. Tuesday or Friday, should bring results.

Our thanks to those who have helped with gear, especially Rex and Rudy. The demonstration cavity magnetron is available for loan to any school club. Unfortunately it is not a working model, but it is a current British type and quite small enough to post. Mr. Colhoun, of the A.B.C., has kindly arranged a visit to the studios and tx at 2NA and it is hoped that we may also see NBN soon.—73, 2ATZ.

CHRISTIAN BROTHERS' COLLEGE BOYS' RADIO CLUB

This year looks like being very good for club activity. The boys are highly interested and we do have enough time available to make regular appearances on 20 and 40 mx. At the time of writing the boys are new to the hobby, and running a 150w. s.s.b. rig is somewhat confusing. On 20 mx very interesting talks have been given to an entire class by Amateurs in different parts of the Pacific. It's a fine way to learn some geography. We will always be pleased to hear from any Amateurs in other States or countries who can tell us a little about their own district; trouble is our working hours are confined to 2300-0500 G.M.T.—that's during working hours in Eastern Australia. The signal needs to be S9 too, for all the class to hear.

The boys' best effort so far on 20 mx has been four continents in an hour, one day when Africa unexpectedly came in at 0630z on 20 mx. Chief "ops" for the year look like being Paul, Terry and Gary. Paul has an advantage, living just across the road from the school.

We found the guy wires on our beam were ruining the 20 mx signal. The addition of a dozen insulators to the eight guy wires worked wonders. Other people might find food for thought here—a field strength meter held near a guy wire tells its own story.

A flying visit was made to the Gosford Field Day recently, but only the local boys were able to come. They saw some wonderful gear and worked the world's nearest DX on 2ACQ's mobile; thanks Frank. 73, 2ATQ.

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VICTORIA

Mr. John Hill, of Electronic Industries Ltd., was the lecturer at the March meeting held as usual in the Radio Theatre of the Royal Melbourne Institute of Technology. Mr. Hill started his talk with the remark that he held an Amateur licence just before the war, then without further ado got busy with the mathematics of radar and developed the "radar equation". Then he showed how the equation could be used to calculate the power and other requirements needed to meet a given performance specification. Mr. Hill then went on to explain the mechanism of azimuth stabilisation, true motion compensation and other mysteries, and concluded with the projection of a series of slides showing typical p.p.i. displays and commercial radar equipment. The lecturer devoted considerable time to answering the many questions asked. The appreciation of the members for such a fine lecture was expressed by Ken 3AFJ in moving a vote of thanks.

The President, David 3ADW, read out the names of new members. Federal Councillor read a letter from F.E. to the effect that rumours of a compulsory change of a.m. to s.s.b. for Amateurs are groundless; the true story is that this recommendation (and that is all that it is!) applies to commercial stations only.

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A lively discussion about the possible reasons for poor attendances at general meetings then took place, with the result that a number of constructive ideas were brought forth. Council will consider these matters at its next meeting.

The next meeting will be the Annual General Meeting and will be held in the Radio Theatre, R.M.I.T. on Wednesday, 4th April. See you there? 73, 3AEL.

WESTERN ZONE

Sorry chaps that zone notes seem to have gone astray somewhere along the line recently. Rather unfortunate that we have already lost one of our members, and will be losing another shortly. Keith 3QG has left Murtoa and is now residing in Rosanna. We wish Keith all the very best of luck in his new location. He is still working as a radio technician at one of the b.c. stations in the city.

Gordon 3GW, of Rainbow, is also leaving for the "big smoke". We will certainly miss Gordon very much as he has been one of the most active and hard working members. Thanks a lot Gordon for taking the W.I.A. broadcasts over the past years and we also wish yourself and good wife all the best of future happiness.

News has been a little on the scarce side over the holiday period, however guess there will be more activity during the winter months when conditions are better for Hamming. 3AKW

MOORABBIN & DISTRICT RADIO CLUB

Once again the National Field Day has come and gone, and although our activities were curtailed to some extent by the lateness of notification of Rule 6A, we did very well indeed and results will be published in due course.

VK3APC/P was situated at Wonga Park near Croydon, and occupied three sites on high spots within the area laid down. At site one, 144 and 7 Mc. were operating; at site two, 50 and 14 Mc.; and at site three, 21 and 3.5 Mc. Operating the station on the different frequencies it was found that 144 Mc. was normal while 50 Mc. lay wide open on Sunday afternoon. VK4s, VK8, VK9 were all contacted, and VK5ZAX/M was worked while using only 8w. input and travelling at 60 m.p.h. 21 Mc. came good also on Sunday afternoon, while 14 Mc. was just ordinary. 7 Mc. was very depressed for a start, but later proved the old stand-by. The highlight on this band was the number of ZLs worked on c.w. A Contest in ZL land coincided with our N.F.D., hi! 3.5 Mc. was very disappointing but we found out from a local who operates the bush fire network that the particular spot where we were operating was no good for transmission on 3 Mc.

The following members were responsible for the organisation and operation of VK3APC/P: Peter 3APD, Harold 3AFQ, Ken 3ACS, Alf 3LC, Arthur 3AWO, Bob 3NZ, Kevin 3ARD, Ray 3JI, Bill 3JE, George 3NQ, Graham 3ZMQ, and Graeme 3ZIP. These members were assisted by junior members John Chandler, Hal Shirley, John Antonella and Lindsay Stronell.

In all, we had a very enjoyable week-end and as usual are looking forward already to the Field Day next year—be it the National Field Day or a memorial to the late VK2JU.

Other than the above our activities are getting into gear again for 1962. The first 80 mx tx hunt was run in March, and social events are again current. Visits to Lyndhurst Transmitting Centre and to Essendon Air Control were well patronised, and the 80 mx net is proving more popular every week. 73, 3LC.

QUEENSLAND

GENERAL NEWS

At last, that once-a-year week-end is almost here again. We hope there's a circle on your calendar around the week-end of April 13, 14 and 15 for the Queensland Convention at Alexandra Headland between Maroochydore and Mooloolaba on the near North Coast. The site at Alexandra Park is just 80 miles from Brisbane and 63 miles from Gympie. Both you and your family will be welcome from 4 p.m. Friday to 4 p.m. Sunday, and there'll be a great chance to enjoy the famous sunshine and surf. Every effort is being made to make the Convention as attractive as possible for family groups, with charges on a pro rata basis (half price for children).

Organiser Vince 4VJ has included these attractions; competitions with prizes, club participation events, a barbecue on Saturday night, continuous operation of 4WI, the holding of the Wide Bay and Burnett hook-up from the site, displays of the most modern Ham equipment available, and an auction of secondhand gear. The week-end promises to be the most successful Convention yet, so don't be in the ranks of those who are sorry later they didn't attend, and let's see your happy smiling face at the Alexandra Headland Convention.

Latest news on the Jamboree of the Air in Queensland is that Hdqrs. Commissioner A. A. "Skip" Jackson has been appointed organiser on the Scout side of things. "Skip" has had an interest in Amateur Radio for many years, being a foundation member of the W.I.A. in Queensland and helping to build the first 4WI tx! Rival interest is being shown by Rockhampton Mayor (Alderman Rex Pilbeam, M.L.A.) and Redcliffe Mayor (Alderman Jim Houghton, M.L.A.) and press t.v. publicity seems certain.

Good deed might be done by the v.h.f. boys over the Easter week-end. Arrangements are going on for their taking part in the communications set-up for the big South-East Queensland Senior Scout venture in the Toowoomba-Lockyer area. If the gear doesn't spark on the Convention, then there'll be four days to find the fault.

The slow Morse sessions being offered by Alan 4SS are being much appreciated by Amateurs in the Brisbane area. Transmission is now on 3550 kc. between 0700 and 0730 and 1900 and 1930 on Sundays, and 1900 and 1930 on Wednesday nights. The Morse is offered in two sections, the first five to eight w.p.m. with some words repeated, and the second 10 to 12 w.p.m. The second section will be speeded up as the exam. draws near.

Several members and associates on the mend again after being on the sick list. Stan 4SA after a couple of weeks' holiday, had a little leg trouble and had to be taken to Greenslopes Repat. Hospital by ambulance, but is back on the air again. The keen caravaner, Steve 4BB, came to the big smoke from Bundaberg for an op. late in Feb. but should be home well by now. The frilly apron of Howard 4WO has been worked overtime since his XYL was admitted to hospital for an operation. Enthusiast Neil Drane is showing interest in Radio again after recovering from bad head injuries received in a road accident.

Like to keep the smile on the face of the inward QSL man, Jack 4JF, because of the success in keeping the cards moving? The following can do their bit this time: 4XR, 4NR, 4OH, 4RP, 4RR, 4MD, 4WG, 4ZBZ, 4ZHG, 4ZBF, 4ZNS, 4ZBS, 4ZBT, 4ZEL, 4ZMG, 4ZAX, 4ZAA, 4ZDJ, 4ZAP/P, 4ZAW, 4ZCP, 4ZRH, and 4ZDA.

Watch (we hope) for a sudden swelling in the Amateur ranks in the Sunshine State during the year. What with such large classes as 20 at the Northern Command Signals Amateur Radio Club's A.O.C.P. course in Brisbane, and another 20 at Bundaberg, the bands will be rocking with new call signs. The Bundaberg effort is first class as the intense interest there has already brought almost a score of new associates to the W.I.A.

The interest almost puts to shame the efforts of members on Sunday mornings around 0915 on 7105 kc. during the 4WI hook-up after the news. Give the station men Stan 4SA and Alf 4OL some reward for their time and effort in arranging the news and the hook-up by calling in, even if only to say you are listening. Surely from all of Brisbane in particular more than a couple of call signs can be acknowledged.

We in VK4 land offer our sympathy to the PanSy patient in VK5 land who must by this be struck down with the mysterious illness of frustration at not being able to pay his licence fee without untangling miles of red tape to find the Receiver of Public Moneys. I could say the only remedy is to shift camp to the Sunshine State with its numerous Post Offices for Amateurs, but, shame, I look out to find the rain pelting down. Must be a passing light shower. 73, Don.

WIDE BAY AND BURNETT BRANCH

The Feb. monthly meeting at the Central School, Gympie, was presided over by Eric 4XR, with members from Maryborough, Nambour and Gympie. The absence of the Bundaberg boys was regretted but the distance is a bit far. Main items at the meeting was a ballot for the disposal gear, and one member went home with the mudguards of his car resting on the wheels (didn't you, Ken!). After a discussion on projects for the year, John Lind gave a talk illustrated with slides on transmission lines from power house to public which was most appreciated by all.

John, an electrical engineer, is now going through the classes at Gympie, and will soon be adding QRM to our bands (not a.c. I hope). A comparative stranger to our ranks was Col 4TW with his XYL and their new pigeon-pair harmonics. John 4PU looks like being up with the top scorers in the Ross Hull Contest, while Mac 4HD is now holder of W.A.S. on 50 Mc. after a 12-year wait for that VK8. Congrats. go to Mac also for working into VK3 and VK5 on 144 Mc. Harry 4ZHG has had a whale of a time on 50 Mc. and is now playing with 144 Mc. gear. 73, 4ZHG.

SOUTH COAST

The local press says that old timer J. Thompson 4XP will soon be back on the air from up Natural Arch way as power mains are being extended to his locality. Welcome back, OM.

Not much pleasure from the National Field Day because of extremely poor conditions. Few contacts on Saturday were followed by a stormy Sunday.

With the assistance of Bob, president, members of the Southport Radio Club, and Scoutmaster H. Blake and a number of Scouts, the vertical antenna for Del 4RJ was erected. By now, an excellent tx and rx built by Frank 4FN, a very old and esteemed friend of Del, should be installed. Del and his XYL extend their thanks and appreciation to the very willing workers. 73, 4WS.

TOWNSVILLE AND BURDEKIN DISTRICT

At the last meeting of the Townsville Amateur Radio Club the main item of the night was the ballot to see if the members wanted to affiliate with the W.I.A. The result was a unanimous vote to affiliate with the W.I.A. As the newly formed club in Ayr is affiliated with the Institute also, it points out the fact that all Amateurs should belong to the W.I.A. and so strengthen our voice when sundry powers want to take great strips of our frequencies from us.

Frank Sturgess gave a very interesting lecture on the equipment used at 4TO, and to finish off an interesting evening, Jim Daly gave a lecture dealing with structual strains and stresses, etc., that occur when aerial towers are constructed.

John 4DD has departed for Sydney on a spot of leave and has taken his new s.s.b. rx with him. Bob 4MF has at long last decided what the best set is and is anxiously awaiting delivery of a Hallicrafters rx. Bert 4LB has also invested in a certain well known make of s.s.b. tx. Does it run on batteries, Bert, or do you just keep it in a dry cell? Looks like Alan 4PS is getting prepared for lots of DX or possibly to help get the R.D. trophy for VK4 this year, as he has thoroughly overhauled his beam and tropic-proofed his motor.

One of our P.M.G. boys at Ingham has entered the ranks of Ham Radio and has a Z call. His name? Bill Pickering.

The Burdekin Radio Club had its monthly meeting a few nights ago and after much discussion a constitution was adopted and I noticed certain sums of money being eagerly grabbed by our Secretary John McKenzie from members who want to join the W.I.A.

Joe 4OJ is still determined to get his 128 going on a.c. Norm 4ND still prolonging the agony of the local Hams, of whom five live within stone's throw of him, by not indicating when he will be on the air and what freqs. he will use. Had an official visit from Graham 4BX in his capacity as R.I., and am pleased to state that all gear inspected passed the test. A rather versatile Ham is Graham.

Flash! Just got a ring on the phone from our regular scribe 4RW. He has arrived back home from his overseas trip and was full of news. He also has a new s.s.b. rig that he brought back with him. Also has bundles of xtals up to 12 megs. Another Ham has moved into Ayr in the person of Don Reed. He hasn't taken out a call sign yet and is living in a flat at the moment. When you get around to finding a house Don, there isn't any in Ayr, but I believe that houses are very easy to get in Home Hill, on the other side of the river.

Well apart from doing my shift at the **Best Broadcasting Station** in Queensland (too modest to say it is the best in Australia, even though it is), working some DX, keeping young (three of 'em), and keeping my wife convinced that a Ham rig is essential in the home (I have it in the lounge), I haven't anything to report on my own doings. But if you hear any vicious rumours that my wife Jess keeps the grass down, with no assistance from me, I can assure you that it is a terminal illogicle inac., inecak . . . ikex . . . oh heck, a fib, because I mix up the petrol and oil and when she is really weary. I fill the mower. 73, Claud 4UX.

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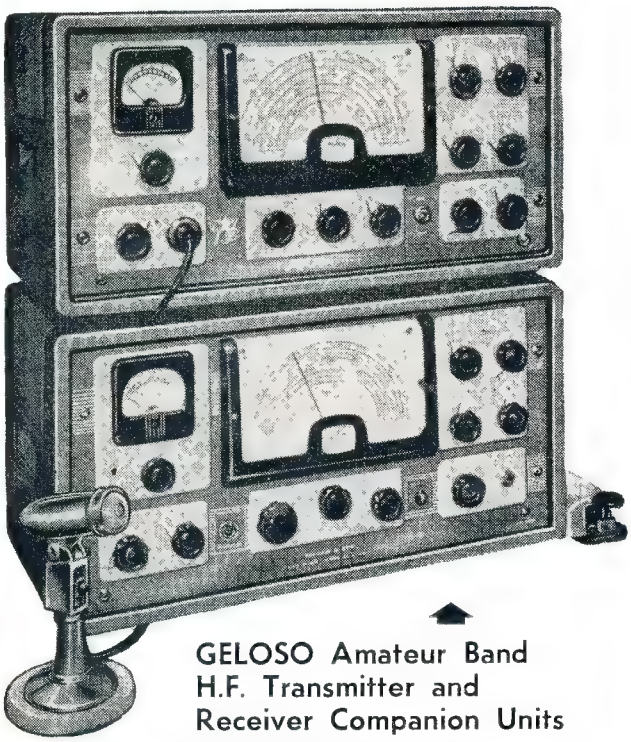

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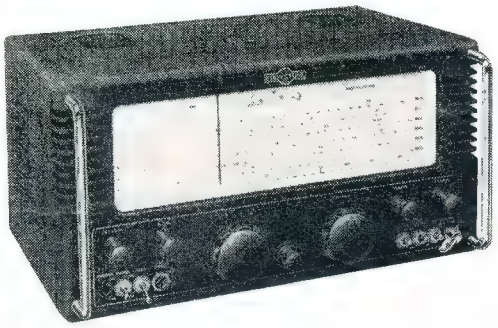

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SOUTH AUSTRALIA

The annual general meeting plus the monthly general meeting of the VK5 Division was held as usual in the clubrooms to a representative gathering of members and visitors, a little below normal in number, although I feel the answer to that is because the foxy ones woke up to the fact that two general meetings were being held together on the one night, and the prospect was one that did not please. It was heartening to see the number of young members present, although there again that might have been because they were not a wake up, and were caught before it dawned on them that their heads were in the noose. However, be it as may, the roll-up was quite pleasing, and this I can guarantee, a good time was had by all.

The annual general meeting opened quietly, carried on quietly, and closed in the same manner, so much so, that the chairman, John 5JC was forced to adjourn it for a while whilst the votes were being scrutinised by the two appointed scrutineers, Leith 5LG and Mick 5ZDR. Incidentally, there is no truth in the rumour that Leith used a pair of binoculars to do his scrutineering, that's just the way he holds his hands when he is concentrating.

Whilst the annual general meeting was in a state of coma, awaiting the results of the ballot for Council, the monthly general meeting was opened and proceeded also quietly on its way, coming to a stop on Federal business, as two inscrutable scrutineers came from behind a curtain with the results of the Council voting. No surprises occurred in the voting, all of the sitting members being returned, with the addition of a couple of new ones.

Smoko was then called for and the QSL cards handed out by George 5RX, and then the general meeting got under way again. It had not proceeded very far before Luke 5LL came back from a little trip he had apparently made on his magic carpet and asked the chairman were we in the annual general meeting or the monthly general meeting? In the ensuing confusion, gay repartee, and general hilarity, the chairman was hard put to decide whether he was in the annual general meeting, the general meeting, or the general ward of the "nut house". However, with characteristic vim and vitality, the chairman firmly brought the meeting back to sanity and business proceeded.

At this point Council sprang what can only be described as a bombshell and a stab in the back. The chairman told the members present that Council had been examining its Honorary Life Membership list and felt that the time was ripe to enlarge the list and with this in view it asked the membership to endorse its choice of George 5RX and Warwick 5PS as the two Life Members for 1962, in recognition of their services over a long, long, period of association with the Division. The members present unanimously endorsed George, and to the tune of some coarse and ribald remarks reluctantly endorsed me. To George it came as a bombshell and a complete surprise, and in his short speech of thanks he thanked all present for the honour bestowed upon him, and made it quite plain that anything that he might have done at any time was done for the benefit of the Division, and it had always been a pleasure to do so.

To me it came as somewhat of a surprise, although I am always prepared for any move that Council might make to muzzle me. I ask you, how can I fight and battle with Council if the said Council bestow on me such an honour, and so soon after their recent letter of thanks for my assistance at the Xmas Get-together. I am stripped of my weapons, my spirit is humbled, and nothing but remains than for me to drain my fountain pen of ink and sit in the front row of all Divisional meetings and say yes, yes, and again yes. Joking aside, I was deeply honoured, and can only say, like George, that anything that I have attempted, has only been attempted in an endeavour to put back into Amateur Radio a little of what I have received from it during my long and happy association with the finest and best Division in VK!

There will now be a slight pause whilst we all fall on each other's shoulders and have a good weep.

Agenda items were then read and discussed by Phil the photographer, 5NN, may he get a pinhole in his bellows, curse him. Brian 5JR addressed the meeting in connection with the Glandore Boys' Home Radio Club and the Magill Boys' Home Radio Club. Luke asked some sticky questions regarding the picnic, several asked questions on the agenda items, Keith 5KH (5WI) answered several questions on the building fund, and with the time rapidly approaching zero hour, the chairman applied the gag and the meeting, or meetings, broke up with the knowledge that a good time had been had by all present, and as the time was now 11.05 p.m., a few hardy souls stayed behind to clean up the room, intermingled with a little discussing here and there of the every-day problems associated with our hobby.

A welcome visitor to the meeting was Freddy 5FH, almost a stranger these days, more's the pity. Listed in the members renewing their subs. was Bob 5LP. Have not heard this one on the air since we both lived on the Esplanade at Henley Beach. His QTH these days is "Pine Lodge," Mount Lofty (ADS7 to you), and apparently he has come under the influence of some of the bods up there.

A lot of work goes on behind the scenes of Amateur Radio and a deal of it does not see the light of day. Witness the little talk of Brian 5JR at the meeting concerning the Radio Clubs established at the Glandore Boys' Home and the Magill Boys' Home. Without any fanfare of trumpets he told us how he had played a part (probably a lot bigger part than he let us know) in the formation and operation of these two clubs, with no more incentive than a desire to help these boys along a somewhat difficult path. Unfortunately, due to circumstances beyond his control, he now found that he could no longer give of his time to the boys and he wondered if any member or members would be prepared to help. Think about it fellows and if you can help in any way, or you would like some details, then contact him and he will be only too pleased to oblige.

Doc 5MD did not nominate for Council this year, and except for 1959-60, this will be the first year that he has been out of office of some sort or other since the Division commenced after the last war. He has in his time held every executive post on Council, and for many years he and the Division have been synonomous. He has not been in the best of health recently and this probably decided him to give Council duties a rest, although he will always be available from the sidelines.

Jim 5JB from Leigh Creek, and Joe 5JO, the newly-weds, heard in a short contact on 7 Mc. just before the 5WI session the other Sunday, but did not stop with them very long because Joe was openly boasting, with a smirk on his face that could be heard miles away, of how he had just had breakfast in bed. How do you do it, Joe?

Jim 5JB was heard later on in the morning in QSO with Keith 5WI and said that he was not on very much as he was still QRL around the house. It was the first time that he had been in the call-back but expected to be in all of them now. Welcome Jim, good idea to get in the call-back, it is the best way to get known far and near.

Talking of Leigh Creek reminds me of Port Augusta, and talking of Port Augusta reminds me of Tom 5AQ, who was also heard in the call-back passing on the news that Hughie 8AZ was leaving Daly Waters and had already closed down his station at the locality. There you are Tom, everybody gets a mention, s.s.b. or any other peculiar form of behaviour. Chortle-chortle!

John 5YA, probably better known as ex-5ZAZ, was heard on 7 Mc. with an extra good signal from Port Pirie on Sunday morning. More will be heard of this signal. Bill 5XB from Kingston heard talking to 5WI and using s.s.b. to boot. Don't hear this one very often, but when we do he is always coming in at more than average strength. Heard him calling Charlie 5ON later in the morning. Wally 5DF heard going great guns on 7 Mc. and saying how he had settled down after a spot of annual leave. Now and then a gulp was heard in his voice as he talked, probably caused by his collar being too tight. What I won't say to get a laugh!

Comps 5EF, my once-a-year journalistic friend, heard on 7 Mc. mobile somewhere near Tanunda. Was using a commercial s.s.b. transistorised set-up in his Model A Ford, and to prove to him for once and all that I can (when I deem it necessary) read s.s.b., he gave the name of the maker of the gear, which was "Coonawarra". How subtle can I be?

Les 5AX had also been listed among my missing operators from the hamlet of Gawler (that will make him do a fandango in parallel), but I think that I heard him mobile on 7 Mc. the other day. Can't be sure, I just heard him as he went by, only went by the voice. Tom 5TL, who at the moment of writing appears to have mislaid his pen, was heard on the call-back the other Sunday with an unusually strong signal, although I thought his coarse remarks about a certain suave, sophisticated, athletic and debonair sub-editor as being "broad-banded," somewhat in bad taste. To me anyhow!

Heard this week that Neil 5ZAW is awaiting his new call sign. Nice work OM. Now you can sit on my side of the room at the meetings and become one of the "Squares". If you listen intently, very intently, you might, I say, you might, hear my signal and we can have a contact on 7 Mc. I even QSL.

On and off in these notes, reference has been made to one, Dale. Well now it has happened, Dale now boasts the call of 5ZER and is all stoked up for 6 mx. Congrats., OM. This will be his last mention in these notes as he now becomes the property of the v.h.f. scribe and therefore untouchable to me, not that I am frightened of the wrath of the said scribe, just careful.

Talking of being careful. Did you notice how those VK4 scribes reacted to my slight, ahem, reference to them. I was putting on my battle dress, prepared to do to the death, when my XYL lifted me up by the arms and said, "Petals, don't play with those VK4 boys, they might play rough". Don't think they have scared me. Oh no, it is just that whenever my XYL tells me to do anything, I always obey. I think!

Ern 5EN heard mobile on 7 Mc., en route to a tennis tournament. A good signal down here. Arthur 5HY heard on 7 Mc. with a low power s.s.b. rig, and talking about a linear on the way. Dear oh dear, another good man bites the dust.

Joe 5RC was heard plaintively calling 5WI on s.s.b. the other Sunday morning. He tried, and he tried, and he tried, but all in vain. My suggestion is to you Joe, get out your bagpipes and do a bit of rock and roll and Keith will call you first in sheer protection. Mind you, Joe, I am a bit Keith's way, after all, a Scotchman on s.s.b.! Lance 5XL was another to call a couple of times, but he was lucky, he managed to get in the act after an hour's wait. His harmonic, a somewhat big harmonic now, Layton, has been issued with his call sign (5CR) and the activity in the Clare area has to be seen to be believed.

Les James has been advised of his success in the last exam. and by the time this is being devoured by all my avid readers (perhaps), Les will be a new call sign on the S.E. list. It is good to welcome Les and Dale to the ranks of the Mt. Gambier boys, as the last intake goes back quite a few years.

Col 5CJ has also been on holidays but has been heard at times on the now famous "lunch time sked" on 7 Mc. As a member of the rival b.c. station, I manage to pick up quite a lot of news of the opposition from those skeds, so beware, little brother is looking and listening!

Received a welcome letter from Les 5UX, "Uncle Xray" to you, in which he raves in ecstacy about his return to the fold after an absence of 7 or 8 years. He gives a list of DX worked which would even turn George 5RX green with envy, including a c.w. contact with Ralph 8NK three doors away. He gives the picture, as he sees it, of Amateur Radio in Alice, and says that 8OW is very active at Darwin with s.s.b. (oh that dreadful word), 8AV is on with a.m., c.w. and s.s.b. (oh, oh, oh!) in Bachelor, and in Alice Frank 8AE is on only occasionally. 8NK is on fairly requently with c.w. on 14 Mc., 8EW is not terribly active with s.s.b. (oh, will it never stop!), and 8XU is on 24 hours a day, from his own lips. Apparently the poor kids at Alice are running the school by themselves. I would say it is time that they gave their headmaster six handers on where he sits down!

Well, again we come to the close of another month's notes, and unless I am prepared to be called a coward, I cannot dodge referring to what has now become known in VK5, with chortles of glee and other expressions of hysterical mirth, as the "PHOTO". There is not much I can say in my defence, other than that I was taken advantage of, but I feel that I must thank all those who wrote, or rung up, or otherwise annoyed me with their funny har-hars, especially the person who posted up the photo on the staff notice board with the caption, "Wanted—dead or alive—preferably dead". Also the humourist who sent me a pair of child's handcuffs through the post, also with

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the caption, "Try these on for size, and then report to Doc 5MD". To say nothing of the wellwisher who went to the bother placing a sponge cake on my front doorstep, inside of which was a file!! I ate the cake, anyway, and nothing has happened as yet. To the Magazine Committee, Ye Ed., and to the committee's secretary, who sent me a letter of derision informing me that my photo would be in the March issue of "A.R.," and, incidentally, tricked himself, because it was already in the Feb. issue, and last but not least, to the "old chassis giver-away" who descended so low as to allow his linotype machine to join in the conspiracy. Mortified, embarrassed, cut to the quick, and disillusioned, I sign, more in sorrow than in anger, 73, de 5PS—PanSy to you.

P.S.—Excuse the verbosity—but they all want a mention—and who am I to discourage them!!

— • • • —

TASMANIA

We extend our deepest sympathy to Alan 7MY upon the death a few weeks ago of his Father. The old gentleman was 86 years of age, and remained active and well until his final short illness.

The club room fund raising committee was delighted with the result of the auction after the Feb. general meeting. The auction realised £20/17/6, which will help to swell the fund.

Len 7LE has moved into his new home at Lindisfarne, right on the water's edge. We confidently expect to hear Len, both on the h.f. and v.h.f. bands in the near future, once he has fully settled in.

The c.w. section of the A.R.R.L. Contest in Feb. was favoured by excellent conditions as far as the 7 meg. band was concerned, and a contact per two minutes could easily be maintained. It might be appropriate at this point to draw the attention of phone-operating Amateurs to the gentlemen's agreement as to the division of the bands. I have noted a VK6, a VK5 and a VK2 regularly operating on about 7030 kc., and this occurred during c.w. contests as well.

While growling, we can only express disapproval of the invasion of the 80 mx band by commercial operators, which has taken place during the post few months. This band is now approaching the condition of 7 megs. We must operate within our allocations, so we can only hope for a similar approach by licensing authorities elsewhere in the world.

The 80 mx band on Monday evening, 6th March, produced the best DX I have heard and worked on that band, with Ws and JAs and other Americans coming through during several hours. It was a joy to work the band.

Ted 7EB has finished his new final and he is delighted with its efficiency. Chas 7CH and Ken 7KA had the long week-end at the beginning of March away on the yacht Moorina, when they worked back to the metropolis on mainly 80 mx. It was also good to hear Bob 7OM again.

Visitors during the past month to Hobart have been Alan VR4CB and his XYL, Bessie; Bernie 3ZIO and Den 7DK.

I am sorry to report that Doug 7DW feels unable to stand for re-election to Council for the ensuing year, due to the fact that he will be very busy installing new gear at the place of his employment. Doug has worked well for Council, and we look forward to his reappearance at the helm of things. 73, 7ZZ.

NORTH-WEST ZONE

First, my most humble apologies fellows for missing out on previous notes. However, we are in business again, but news is scarce. A tx hunt was held during Feb. and although the attendance was small, a good time was had by all. 7KH, 7SF, 7XL and 7MX made the grade, but 7MS fell by the wayside some place. The idea of planting a tx alongside a railway line has little to commend it if you happen to be on the receiving end. Several XYLs were present and they, too, enjoyed the show, as did the harmonics.

Was most intrigued to hear Frank and David on the band the other night talking shop. Could be they were looking for a monkey for that organ.

7ZW is a consistent occupier of the band now and is making many contacts. Good show, Athol, you must use 'em or lose 'em. Unfortunately, this is borne out by recent events. 7MS appears to be in rx trouble lately, but these things are sent to try us lately, David. Had my share of blow-ups here lately as well. Was privileged to visit the QTH of 7JF, at Poatina, recently and saw a very neat set-up. Nice work, John.

7TT is making more sporadic appearances lately. What is going on? Have not heard Wynyard or Stanley lately, so wonder what is cooking that-away. Heard a whisper that Harold was in VK5. Once again the Gawkbox has reared it's ugly head in our midst. Despite explanations, I know that the array above the QTH of 7XL has nothing to do with 50 Mc.

Have just returned from the March meeting of the zone, and we were all delighted to meet George from W-land, who is stationed at Burnie for a time. Welcome to the zone, George. Bob 7ZAA gave an interesting lecture on v.h.f. with demonstrations to match, rounding off the show with some very nice colour slides he has taken in scenic spots. Thanks Bob. Following that, 7XL produced a mystery box which proved to be a s.s.b. rig. Anybody got a Class A amp. with a gain of about 5 megavolts to finish it off. Would be well received. 73, 7MX.

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HAMADS

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Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. **Copy** must be received at **P.O. Box 36, East Melbourne, C.2, Vic., by 8th of the month,** and **remittance should accompany** the advertisement. Call signs are now permitted in Hamads. Dealers' advertisements not accepted in this column.

BENDIX Frequency Meter with charts and V.R. Power Supply for a.c. operation, perfect, £45. Modulator Unit, preamp. to 830Bs, Trimax 120 watt Multimatch Transformer, £27/10/0. VK3DS, 123 Webster Street, Ballarat, Vic.

COMMUNICATIONS Receiver, R.C.A. AR88, 13 tubes, variable b.f.o., variable selectivity, S meter, five bands bandspread through to 28 Mc., A1 order, £120. VK3DS, 123 Webster Street, Ballarat.

FOR SALE: Complete s.s.b. station, Drake 2A Receiver with xtal calibrator, matching speaker, Q mult. Central Electronics 10B Exciter with all coils, antitrip and matching v.f.o. All indistinguishable from new. Also 813 Linear. What offers? VK3AHR, Phone JX 2910 day, after hours WF 4203 (Vic.).

FOR SALE: Geloso Transmitter G222R, perfect order, mike included, £85. Mobile Transmitter, 40 metres, commercial finish, final 2E26, mod. pair 6AQ5s, driven 12AT7, includes loaded whip (imported U.S.A.) for mudguard mounting, £20. Inspection of all units will be welcomed. John Morris, 224 Burwood Road, Burwood, Vic. BW 1264. VK3AES.

FOR SALE: Receiver, Communications, Radiovision Commander, £99 or best offer. Keith Echberg, 87 Walter Rd., Inglewood, West. Aust. Phone 71-4080. VK6KE.

FOR SALE: LM10 Freq. Meter, £28. Grundig G.d.o., £24. A.W.A. battery operated Mod. Osc., £10. Heathkit OM1 3" Oscilloscope £37. Few left, commercially-made Beams, 4 el. 5 mx and 6 el. 2 mx, 300 ohms, can be folded up like t.v. antenna, £6 each. Eddystone 750 Rx, very good cond., £100. H.R.O. mx Rx, £33. C.r.o. Indicator Unit, Type A1047, £7/15/0. 12 volt Transistor Power Supply, 50w., 400v. output, home brew, £16. 3 Transistor xtal locked Converter, 40 mx, feed into b.c. or car radio, £11. All band pre-amp., £5. Kingsley S9er, £5. 100 watt Public Address Amp., containing 950v. 250 mA. Power Trans., two 300 mA. Chokes, two Fil. Trans., one for 866s, output trans., wired, no valves, £20. 6 volt. Vib. Pwr. Supply, low power, £1/5/0. 22 or 122 Set 12 volt Vib. Trans. 100 mA, 200 mA. Chokes, 600/600 ohm Line Trans., 600/60,000 ohm Line Trans., all 5/- each. 3BZ Tx, no valves, £4. Type S Pwr. Supply, £10. Ribbon Mic., 50 ohm, £7/10/0. Linear Amp. with high power pi-coupler, using 4 only 6AG7 in g. grid, driven by 6AG7, £11. Geloso V.f.o. in cabinet, £11. Assortment of Power Trans. and Supplies, 750 aside, 300 mA., £4/10/0. C.r.o. Trans., 2.3 uV. 15/-. Large (and heavy) metal cabinet, containing several dozen EF50s, all wired on small chassis with resistors and condensers, £1/10/0. Other bits and pieces —the thoughtless accumulation of gear over several years—big clean out. T. E. Straughair, 185 Stephen St., Yarraville, W.13, Victoria.

GELOSO Rx Front End, never used. Complete as purchased, £25 or reasonable offer. And Kingsley AR7 in rack, pwr. trans. U.S., one coil box covering 14 and 21 Mc. needs attention, no xtal, remainder, "go", £10 or offer. VK3ADL Phone WF 8653 (Vic.).

SELL: A. & R. MT15A 75w. Modulation Transformer. Wanted: Mechanical Filter. VK3AOF, Rolf Haggblom, 109 Pier St., Altona, Melbourne.

SELL: Heathkit DX100 SB10 Combination with in-built low-pass filter, vernier null controls, co-axial antenna relay, passes all critics, excellent signal, write or sked VK4FJ, Brisbane. £250.

SELL: "VK6GU" Tri-Band Beam, never been used, £25, complete with instructions. Gill Motor, £4. BC348, £35. J. M. Hilliard (WX 2498), 57 Gardenia Street, Blackburn, Vic.

SELL: 1155 Rx, in-built 240v. p/s., noise limiter, S meter, works well, £20. John Howden, Phone WX 5049, VK3ZCH.

TRANSMITTER Type 153, 400w., 2-20 Mc., comprises b.f.o. type exciter for break-in c.w., a.m. grid modulation, f.m. reactance tube, regulated power supplies, c.w. monitor, antenna coupler, xtal calibrator, variable final bias, some spares and cables, £40. VK3AKT, Phone 87-3420 (Vic.).

WANTED in good order: BC453 and BC455, also BC375 Tx for wrecking. VK4CP, 4a Phillip Street, Toowoomba, Q'land.

WANTED TO BUY: Self-supporting Tower suitable for rotary beam. Full details and price to VK3AXK, S. R. Coleston, 15 Oakhill Rd., Mt. Waverley.

CRYSTALS ALL THESE FREQUENCIES £2 EACH

3.5 Mc. Ham Band:

DC	3515	FT	3555
FT	3535	DC	3560
FT	3536	DC	3562
DC	3537	FT	3564
FT	3534	FT	3573
DC	3547	FT	3575
FT	3549	FT	3580
FT	3552	FT	3587
DC	3552	FT	3595

7 Mc. Ham Band:

Crystals of any frequency, £2.

50 Mc. Hand Band:

DC	8333.3	= 50 Mc.
DC	8383.3	= 50.3 Mc.
DC	8400	= 50.4 Mc.
DC	8416	= 50.5 Mc.
DC	8450	= 50.7 Mc.
DC	8483	= 50.9 Mc.
DC	8500	= 51 Mc.

144 Mc. Ham Band:

DC	8000	DC	8014
DC	8010	DC	8014.5
DC	8013	DC	8015
DC	8013.5	DC	8015.5

144 Mc. Ham Band (continued):

DC	8016	DC	8022.5	DC	8029.5
DC	8016.5	DC	8023	DC	8030
DC	8017	DC	8023.5	DC	8030.5
DC	8017.5	DC	8024	DC	8031
DC	8018	DC	8024.5	DC	8031.5
DC	8018.5	DC	8025	DC	8032
DC	8019	DC	8025.5	DC	8032.5
DC	8019.5	DC	8026	DC	8033
DC	8020	DC	8026.5	DC	8033.5
DC	8020.5	DC	8027	DC	8034
DC	8021	DC	8027.5	DC	8034.5
DC	8021.5	DC	8028	DC	8035
DC	8022	DC	8028.5	DC	8035.5
		DC	8029		

CONDENSERS

Superseal Paper Type:

0.047 μF. 1000v. 0.0033 μF. 600v.
0.0047 μF. 400v. 0.001 μF. 1000v.
ALL 6d. EACH

Metalpak Electrolytic Type:

25 μF. 25v.d.c.w. 2 μF. 150v.d.c.w.
2 μF. 200v.d.c.w. 2 μF. 250v.d.c.w.
and others.
ALL 6d. EACH

Electrolytic Chassis Mounting:

24 μF., 350 peak volts .... **2/- each**
32 μF., 200 volts working .... **2/- each**
25 μF., 40 peak volts .. .. **2/- each**

Mica Condensers:

15 pF.	68 pF.	270 pF.
20 pF.	70 pF.	300 pF.
25 pF.	100 pF.	500 pF.
47 pF.	220 pF.	750 pF.
50 pF.	250 pF.	1000 pF.

ALL 9d. EACH

Metalpak Pig-Tail:

0.022 μF. Sprague .. .. **1/- each**
0.0022 μF. Sprague .... **1/- each**

VALVE SOCKETS

Ceramic 4-pin Valve Sockets, **2/- each**
„ 5-pin „ „ **2/- each**
„ 6-pin „ „ **2/- each**
„ 7-pin „ „ **2/- each**
7-pin Miniature Valve Sockets and Shields. New. **15 for £1.**
9-pin Valve Sockets, McMurdo, **9d. ea.**
Octal Valve Sockets .... **1/6 each**

CO-AXIAL CABLE

100 ohm co-ax. cable, ⅜" diam., **2/- yd.**
98 ohm co-ax. cable, ⅜" diam., in 100 yard rolls **£5**, or **1/3 yard.**
Twinex co-ax cable, 75 ohm .. **2/- yard**
72 ohm, 3/16" diam., **2/- yard**, or 100 yard roll £8/15/0.
50 ohm co-ax. cable, ⅜" diam., **2/- yard** or in 100 yd. rolls **£8/15/0.**

We have stocks of the latest—
LOG BOOKS 5/6

COMMAND RX COIL BOXES

190 Kc. to 550 Kc., new, **5/- each**

COMMAND P.A. COILS

For 3-4 Mc. Tx. (Serial No. 7247).
Price 7/6 each

COMMAND INDUCTORS

Single layer coil (Serial No. 6035).
For 5-3.1 Mc. and 7-9.1 Mc. Tx.
Price 7/6 each.

SAKURA CIRCUIT TESTER

Model TR-6S

Sensitivity: d.c. 20,000 ohms/volt, a.c. 10,000 ohms/volt. Ranges—d.c. volts: 6, 30, 120, 600, 1,200v.; a.c. volts: 6, 30, 120, 600, 1,200v. D.c. current: 60 μA., 6 mA., 60 mA., 600 mA. Resistance: 10K, 100K, 1M, 10M ohms. Capacitance: 0.001-0.2 μF., 0.0001-0.01 μF. Inductance: 30 3,000H. Decibels: —20 to +17 db. (0 db.—0.775v.—600 ohms). Dimensions: 4⅛" x 6¼" x 2⅜". Weight: 1.3 lbs.
Price £9/10/0 inc. tax.

FERROCART VACUUM TUBE VOLTMETER

V.T.V.M. .. .. **£19/17/6** inc. tax
H.V. Probe .. .. **£3/5/0** inc tax
R.F. Probe .. .. **£2/10/0** inc. tax

ECKO NO. 88 TRANSCEIVER

Portable, xtal locked 4 channel, 40 to 43 Mc., 14 valves, 1L4, 1T4, 3A4, etc., 12v. 3a. input power supply. Less crystals, mike and headphones, etc.
To Clear, £6/10/0 each

RECORDING TAPE

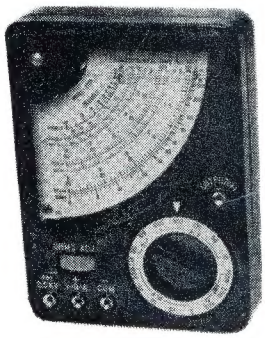
TMK "Syncrotape" 7" Rolls, PL-12 (Standard) **£1/16/6**
TMK "Syncrotape" 7" Rolls AC-18 (Long Play) **£2/10/6**

V.H.F. RECEIVERS

Type R89/ARN-5A. 300 Mc. Valves: seven 6AJ5s, two 12SN7s, one 12SR7, one 28D7, six relays, and three crystals of 6522.9 Kc. As new. **£5 each.**

MULTIMETER Model 200H

20,000 ohms per v. d.c. 10,000 ohms per v. a.c.



Specifications:
D.c. volts: 0-5, 25, 50, 250, 500, 2,500.
A.c. volts: 0-10, 50, 100, 500, 1,000.
D.c. current: 0-50 μA.; 25, 250 mA.
Resistance: 0-60K ohms; 0-6 meg.
Capacity: 0.01-0.3 μF. (at a.c. 5v.); 0.0001 - 0.01 μF. (at a.c. 250v.).
Decibel: minus 20 db. plus 22 db.
Output range 0-10, 50, 100, 500, and 1,000.
Battery used: UM3 1.5v. 1 piece.
Dimensions: 3¼ x 4½ x 1-1/8 in.

Complete with internal battery, testing leads and prods.

Price £5/17/6 inc. tax.

1155 GENEMOTORS TYPE 34A

Input 9.3v., output 225v. at 110 mA. Complete with relays and filters, in case. Weight 30 lbs. **19/6 each.**
5/- handling charge.

SPECIALS!! SPECIALS!!

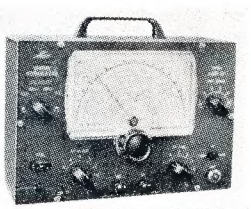
High or Low Imp. **Headphones, 12/6 pr.**
Morse Key and **Buzzer Sets**, new, **12/6**
SCR522 28v. **Genemotor** power supply, **20/-**. 5/- packing fee.
English **Filter Chokes**, 40 mA., 100 ohm resistance .... **3/6 each**
"Scope" Soldering Iron, to clear, 45/-; complete with transformer, £4/10/0.
Carbon Microphones .... **12/6 each**
Carbon Mike Transformers, small, new, ... **5/- each**
Vibrators, Oak/M.S.P. 6v. synchronous 7-pin AV5211R .... **£1 each**
Octal Plug and Socket, American Ampenol, in metal screw case, **8/6 set**

8 Mc. MINIATURE CRYSTALS

Band-edge market Miniature Crystal and socket, **£2.**

LSG11 SIGNAL GENERATOR

120 Kc.-390 Mc.



Freq. range (six bands): 120 Kc. to 130 Mc. on fundamentals; 120 to 390 Mc. on harmonics. Mod. freq. 400 and 1,000 c.p.s. Tubes: 12BH7, 6AR5. Rectifier: half wave selenium. Provision for crystal oscillator (xtal not supplied), 1 to 15 Mc. 100, 117 or 230v. a.c. input, 50/60 c.p.s. Size: 7½ x 10¾ x 4½ in. Weight: 6 lb.

Price £16/17/6 inc. tax.

HAM RADIO SUPPLIERS

5A MELVILLE STREET, HAWTHORN, VICTORIA Phone 86-6465

Money Orders and Postal Notes payable Nth. Hawthorn P.O. 5/- Packing Charge

Design for communications

Designed for rugged service; the AKG D17 cardioid microphone provides:—

- Frequency Response: 50-15,000 c/s
- Front-to-Back Ratio: 18 db
- Impedance: 60 or 200 ohms

A lightweight communication set, the AKG Headphone/ Microphone set combines the well-known K50 headphones and a D58 noise cancelling microphone and provides:—

Headphones:	Frequency Response:	30-20,000 c/s
	Distortion	less than 1% at ImW
Microphone:	Frequency Response:	50-12,000 c/s
	Impedance:	200 ohms

For further particulars please contact Engineering Products Division.

AMALGAMATED WIRELESS (AUSTRALASIA) LIMITED

Head Office: 47 York Street, Sydney. 20233